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A BRIEF ACCOUNT of the YELLOW FEVER which has appeared at different times in Providence, (R. I.) with a Topographical Sketch of that Town, and some Reflections on the Use of Mercury. By Dr. L. WHEATON, Physician at Providence.

PROVIDENCE is situated at the head of Narraganset Bay, 30 miles north of Newport, and 35 miles from the ocean.

The oldest and most populous part of the town is built upon the western margin of a tongue of land, formed by the Pawtucket River on the east, and by the Moshasick on the west, or more properly by two arms of the bay, into which these rivers empty themselves. This tongue of land, which is divided by a lofty ridge from north to south, is about two miles in length and one in breadth, and terminates at the south end of the town in a high sandy bluff; the eastern extremity of which, connected with the opposite shore of Massachusetts by an elegant wooden bridge, has lately been called India-Point, from the improvements made there for the accommodation of India ships; whilst the western and more elevated point preserves its ancient name of Fox-Hill. Here the two rivers unite to form what is usually called Providence River, which three miles below is expanded into the spacious and delightful bay above mentioned. This part of the town is composed principally of two streets of more than a mile in length, running in a north and south direction, nearly parallel with each other, along the margin of the river, and at the foot of the ridge above mentioned, which overlooks them from the east.

These two streets are united at the south end of the town, where they take an eastern direction to India-Point: they are again united at the north end, and become continuous with the north-eastern post-road to Boston. The first of these, or Water-street, communicates with the second

(which is considerably more elevated from the beginning acclivity of the hill) by a number of lanes of two or three hundred feet in length; some of easy ascent, others inconveniently steep; which are well paved and mostly built upon. Between these streets northward, there are also two public squares, on one of which stands the court-house, an elegant building, and on the other a Baptist church, the largest and finest in the Eastern States.

The hill or ridge above mentioned, attains a sudden elevation opposite the north end of the town, of more than two hundred feet above the tide-water, becomes less elevated where the college is situated, and as it proceeds southward, is of still less difficult ascent: here, of late years, it has been crossed by a number of new streets, which have been much built upon, and embellished with some very elegant houses. Below these, it is terminated by a deep swale or ravine, a few rods north of Fox-Hill. Eastward, the ridge has for the most part a gradual descent towards the banks of Pawtucket river, about a mile, more or less, affording a range of highly cultivated meadows, and some elegant country seats.

From the summit of this hill, in fine weather, there is a delightful prospect of the Bay below as far as Rhode-Island, of intervening islands and projecting points, with a commanding view of the country in every direction: and although, from the convexity of the hill on this side, very little can be seen of the two principal streets beneath, the more distant west side of the town, and cove hereafter mentioned, are advantageously displayed.

The east side of the town heretofore noticed, which contains about two thirds of its population, is connected with the west in a central part, by a spacious wooden bridge one hundred and fifty feet in length: in front of which is a public square, containing on the south side a handsome brick market, and forming on the opposite the common place of exchange. Above, the river makes a beautiful cove of more than half a mile in breadth, into which the tide flows with rapidity from under the bridge; and which receives the Moshasick from the north, and another small stream of fresh water from the west, through deep ravines formed in the narrow but elevated plain which surrounds the cove on this quarter, and indeed the whole west side of the town. This cove contributes much to a free circulation of air in the adjacent streets. On its eastern border

from the bridge northward it is faced by an open quay for a considerable distance. The bridge and adjoining quay form a favourite walk; from whence, in the summer season, and especially by moonlight, the cove with its environs has a very pleasant effect. Below the bridge there is a line of wharves, extending south-easterly about half a mile, which are the common resort of shipping. These wharves, many of which are indented with small docks, are constructed on the rear of lots, which front eastward on Water-street, the south part of which, having been the uniform seat of the yellow fever, will deserve more particular notice hereafter.

The west side of the town is built partly on marshy ground, and is consequently low. This also is composed principally of two streets of half a mile in length, which diverging south-westerly from the bridge, with a number of cross streets by which they communicate with each other, or with the water on either hand, give to this part of the town a triangular form; the north side of which is skirted by the cove, and the south by a flat of the river; whilst the third, with a moderate acclivity, gains the verge of the adjacent plain, which has evidently once formed the west bank of the river in this place, as it still does above and below it. Here the two streets are connected by a cross street, which runs obliquely from east to west; and when united on the plain, compose a street, which of late years has been much extended upon the leading country road westward. The plain which surrounds the west and south-west quarter of the town is from one to two miles in breadth, preserving a pretty uniform level southward, in which direction it is much more extensive. Its mean elevation above the surface of the river may be fifty feet. Soil light and sandy. It is for the most part well cultivated, still preserves a few handsome pieces of wood-land, and contains a number of small fresh-water-ponds, several of which, abounding with aquatic weeds, are almost evaporated in dry seasons, and their exhalations have been considered the cause of fevers in the neighbouring high and otherwise healthy part of the town.

On approaching the town from this quarter, whilst the college, Presbyterian church, and other buildings, at the south end of the opposite hill, appear to much advantage, the sunken appearance of the more compact and populous parts of the town which intervene, is not calculated to give the most favourable idea of its situation.

The soil on the east side of the town is a gravelly loam with a rich mould, abounding with springs, and, in its natural state, with rocks and stones of the quartzose or siliceous kind. The hill or ridge so frequently mentioned, is covered with a soil of this sort, whilst the base of it, as far as it has been penetrated, in digging wells or otherwise, is found to consist of a broken mass of slate rock, of different degrees of mixture and hardness; and at the foot of the hill westward there have been strong indications of pit-coal, which may one day supply the inhabitants with fuel.

There is no lime-stone in the immediate vicinity of the town. The Providence lime, so highly esteemed in New-York and elsewhere, is the product of some detached masses of lime-rock in Smithfield, eight miles distant. From these rocks forty thousand casks of lime are made annually. The stone is also much used in building, and as it takes a handsome polish, is employed for chimney pieces and other purposes: but the most remarkable circumstance attending these rocks, is their insulated situation, surrounded on every side by rocks of a very opposite character. It requires some effort of imagination to reconcile their appearance here, with the common opinion of their calcareous origin.

Providence is the most commercial town between New-York and Boston. Its population may be estimated at eight thousand. The houses are generally well built, mostly of wood; there are, however, many handsome brick buildings. The streets in general are from forty to fifty feet in breadth, and well paved. There is a prevalent taste for gardening, and the cultivation of fruit and ornamental trees; few situations being without appendages of this sort. The east side of the town is abundantly supplied with excellent water, from wells, and the west by an aqueduct of wooden pipes. Wood for fuel is furnished at all seasons, by the neighbouring country, at a pretty uniform and moderate price. The market is well supplied with butcher's meats and poultry, with a great variety of scale and shell fish, of a very superior quality, from the bay below; and with excellent butter, cheese, vegetables, fruits and cider in abundance. Malt liquors are little used.

From the relative lowness of the more compact and populous part of this town, a stranger might be led to pronounce it an unhealthy situation. This, however, is not the fact. Providence I believe to be as healthy as any place

of equal population in the Eastern States. The summer heats, although greater than at Newport, are tempered for the most part by the prevailing south-west wind, or the sea-breezes which draw up the river. Thunder showers are also frequent. Of febrile diseases the most usual is the typhus mitior, or slow continued fever, which is seldom mortal. The cholera infantum is not uncommon in the summer season; but for several years past has taken off very few children. Diarrhœas, degenerating into dysenteries, are sporadic in autumn, as are pulmonic inflammations in winter and spring. Consumption is here as elsewhere, a perennial resident. Of common epidemics there is a common allotment. Intermittents and bilious remittents, so common in the Western and Southern States, have been unknown here for the last fifty years. This town has experienced three visits from the yellow fever, the first in 1797, the second in 1800, and the last in 1805. It has uniformly made its appearance, and committed its principal ravages, in the south part of Water-street, or the lanes and alleys immediately adjacent; and those solitary cases which have occurred elsewhere, could with very few exceptions, be traced to this devoted spot.

The portion of Water-street which has been thus repeatedly the seat of yellow fever, is less than a hundred rods in length; it has in this place a south-eastern direction. The houses on the water side are built as near as possible to the natural bank of the river. The wharves, of course, which are extended in rear of them, westward to the channel, are artificially raised, partly filled with earth, and partly constructed with logs, covered with oyster-shells and earth, leaving vacuities beneath, through which the tide ebbs and flows. They are not spacious—very flat, and indented with a number of small docks, a part of which is left bare at low water.

This, like the other parts of Water-street, is overlooked from the east by the ridge above mentioned, which is here covered with buildings, and at the distance of sixty rods from the water, has an elevation of fifty or sixty feet above its surface. The south end of the street is bounded by a small cove or inlet from the river, which receives through the swale or ravine before noticed, the wash of an extensive range of meadows east of the hill. Immediately below this inlet, the view is terminated by Fox-Hill, which extending a little further westward, and being much higher than the

street, intercepts also the light winds which draw up the river, and gives them a direction across the west side of the town. A situation thus confined by hills eastward and southward, and presenting a south-western slope to the water, gives to the mid-day and afternoon sun an almost vertical power.

Another circumstance deserves notice—the river in this place is somewhat contracted by the Ship-yard, or Eddy's Point, which projects from the opposite shore. The current which passes under the bridge, that connects the two sides of the town, augmented by the two fresh rivers that empty themselves into the cove, brings down such parts of the *wash* of the town, and of the swamps and meadows, several miles in the country, as are suspended by the waters: and although *this* be first diffused over a considerable space of flat, which skirts the west side of the town, it is again concentrated in this place, and, assisted by the south-west and westerly winds, much of it is liable to be deposited in these docks, which are so well contrived to arrest it, and from thence, in hot weather, to afford unwholesome exhalations. To which should be added, this line of wharves is almost exclusively the resort of West-India and coasting vessels.

It has for some time past been contemplated to fill up these docks, and to face this line of wharves with a narrow quay, similar to that above the bridge; an improvement which, with the levelling of Fox-Hill, and converting the ravine above it into a well-constructed common sewer, cannot fail to add to the health as well as beauty of this part of the town.

Made land, upon which so much stress has been laid, is not peculiar to this district: a great part of the west side of the town is built upon ground raised over flats, which, within half a century, have been flowed by the tide water; all the water lots from the bridge, northward to the Episcopal church, for near half a mile, in like manner encroach upon the original bed of the river; and yet these parts have never been visited by the yellow fever.

Common tides in this river rise from five to six feet—the water is salt, more or less diluted, according to the season, by the streams of fresh water above mentioned.

The summer of 1797 had been remarkable for a long-continued drought. Upon the last days of July, and the first of August, there was a sudden transition to damp, easterly weather, with frequent and abundant rains. These were succeeded by an intensely hot sun; the thermometer, in an

airy situation, ranging from 86 to 91. Vegetation revived, and became unusually vigorous. The yellow fever made its first *decided* appearance on the 13th of August. There had been, however, in the course of the season, six or seven extraordinary cases of highly malignant fever, most of which proved mortal, and which the physicians who attended them, and who were afterwards conversant with the yellow fever, considered to be the same disease. It continued to rage from the 13th of August to the 30th of September.—During this season, one hundred and two persons are accounted to have had the disease; forty-five of whom died. Its early disappearance may be partly ascribed to the general (not universal) desertion of this part of the town by its inhabitants; to the unusually cool (not frosty) weather, which succeeded during the first week in October; and especially to a probable change wrought in the atmosphere by a very heavy rain and tornado, which happened on the 8th of this month; and which, taking a direction from N. N. W. to S. S. E. swept many trees and buildings in its course.

In 1800 the first case of yellow fever occurred on the 15th of August, and the disease continued to prevail until the 5th of October. There were this year eighty-three reported cases, fifty of which proved fatal. The contagious district was more universally deserted than in the preceding year, a circumstance which may account for its early disappearance, as the other parts of the town were uncommonly healthy.

In 1805 the disease made its appearance as early as the 25th of July, after a very unusual duration of hot and dry weather. As the Town Council directed an immediate and complete evacuation of this part of the town, it soon subsided, and on the 10th of August had disappeared. The people, however, being impatient to return to their habitations, several new cases occurred in September. There were accounted this year thirty persons only to have had the fever, ten of whom died: the comparative mortality being less than in either of the preceding years, the disease assumed a milder character, and, in cases which proved mortal, the black-vomit in particular was a less conspicuous symptom.

If to this account we add ten cases which have occurred at intermediate periods, the total number of persons affected by the yellow fever in this town, since its first appearance in Philadelphia in 1793, will appear to be two hundred and twenty-five, of whom one hundred have died.

Of the origin of this fever in 1797, opinions have been divided. The advocates for importation laid much stress upon a schooner which arrived here on the 8th of August from Cape-Nicholas, after a passage of twenty-five days, and lay at a wharf near the centre of this contagious ground until the 20th. It was urged that three of her people had been sick of the fever on her homeward passage, that she was besides uncommonly filthy, and that several persons who had been on board of her were afterwards among the number of those who died of the disease.

To this it was replied, that after a full investigation of the circumstances attending this vessel, it appeared, that of the eight persons composing her crew, three had in fact been down with fever on her homeward bound passage, but that all had recovered, and were able to do duty a week before her arrival. 2. That being much infested with musquetoës, bred in the water with which she was ballasted, her hold had been thoroughly fumigated with tar and sulphur, whilst she lay at Warren, ten miles below. 3. That from the bedding and apparel of those that had been sick, which were afterwards taken to their several homes and washed, or otherwise cleansed, there was not a single instance of any disease having been propagated. 4. That in consequence of some disputes about the insurance of this vessel, many, perhaps an hundred persons, had been on board of her during the twelve days which she lay at the wharf; that very few of these, and indeed none but those persons who either resided in this part of the town, or who otherwise passed a considerable time there, became subjects of the disease. 5. That after she had been removed below, by order of the Town Council, and there examined and cleansed, her cargo, which consisted of a few hogsheads of coffee and sugar, was found in good condition—that, except three hides of cattle which had lain neglected and confined in the fore-peak of the vessel, and which were indeed considerably putrid, there was nothing which appeared likely to occasion sickness. And lastly, That several cases of yellow fever, as above stated, had actually occurred before the arrival of this vessel; and that sporadic cases of this mortal disease had appeared in this part of the town for several preceding years.

In 1800, its introduction was ascribed to some sailors from on board the frigate General Greene, then recently returned from a cruise in the West-Indies, and lying in the harbour of Newport with the yellow fever on board. These sailors

arrived on the 10th of August; and it must be confessed, that the fever which appeared this season on the 15th, seemed to concentrate at and near a small boarding-house, where these persons lodged, on their way to Boston. But it was contended, that they, during their short stay at this house, were in good health, with the single exception of one person, who became indisposed there, and was reported afterwards to have died in Boston; that although the fever began in a more northerly part, there were cases at the other extremity of the sickly district above noted, altogether beyond the reach of any probable influence from such a source; and that it was a remarkable fact, that two persons living in detached parts of the town, sickened and died of this fever, who had only once, on different occasions, passed and re-passed these wharves, at low water, in a boat.

In 1805, those who entertain an opinion that this is always an imported disease, did not pretend to assign any particular source from whence it could probably emanate.

Of the few scattering cases which have occurred at intermediate periods, some have been residents in the sickly district above noted; others, persons who had recently arrived from New-York or Boston, already charged with the disease.

To attempt to give a particular history of the disease, as it has appeared in this town, would be to retrace an assemblage of features unhappily too familiar. Here, as elsewhere, it has not been propagated by the sick in situations otherwise healthy; or in other words, has not been found contagious. Of a great number removed to the hospital, in an airy situation south-west of the town, there has been no instance of the disease taken by the attendant physicians or nurses. The medical treatment has been various; the *mercurial plan*, however, has been generally preferred, and in the opinion of some, its advantages have been conclusive: to me, I must confess, its superior efficacy has not been so evident. I have long entertained doubts of the utility of this practice, which subsequent observation has rather confirmed. That it is an inadequate remedy in the more severe cases of this disease, experience affords a melancholy proof. It is true, the same objection may be made to other remedies employed against this destructive malady; but the medicine in question, besides its insufficiency, has, I suspect, in many cases, proved hurtful.

Whatever difference of opinion may prevail on the sub-

ject of the origin, contagious nature, or other properties of this disease, it is sufficiently evident, that a congestion in the vessels of the stomach and contiguous viscera, is the proximate cause of the more characteristic affections which mark its progress. Its most prominent features are pain and distress about the præcordia, succeeded by excessive irritability of the stomach, and an obstinate disposition to vomiting. In a disease of this character, upon what principle can the profuse and indiscriminate use of *mercury* be indicated? I speak of its internal use. It is not pretended that it possesses the specific virtues of an antidote; and the only rationale which I have heard attempted, is founded on the well known opinion of the celebrated John Hunter, "That diseased actions are incompatible with each other; that two constitutional diseases cannot exist in the body at one and the same time." Upon this principle, it is endeavoured to charge the system with mercury, to excite a new disease, which shall supersede that which threatens the life of the patient. This indeed is plausible, but will it bear the test of experience?

Admitting the truth of Hunter's doctrine, which, with some limitations, is probably well founded, I cannot believe it will justify the practice in question; because, 1st. In all bad cases of yellow fever, the mercurial action cannot be seasonably excited. 2d. The immediate use of calomel (the mercurial commonly employed) seldom fails to irritate the stomach, to aggravate the sickness and distress, and in this way, if I mistake not, has in many cases aided in exhausting and destroying the patient. 3d. In those cases where the mercury has shown its peculiar action, I suspect it has been precisely when the disease began to subside, and when such action should be considered rather the consequence than the cause of convalescence.

I cannot illustrate my ideas on this last head better than by briefly stating a case, which first suggested to me a suspicion that there might be some fallacy in the general opinion entertained of the use of mercury in fevers. I will premise, however, that I do not offer it as a model of practice in this disease, because I am confident that in many cases it will be found inadmissible.

In the year 1800, when we had the second destructive visit from the yellow fever, I was called to attend a gentleman attacked with this disease. After blood-letting and a cathartic, I put him upon the usual course of calomel in small

doses, which were continued through the second and third days of his illness. On the 4th, what has been called the second stage of the disease commencing, hæmorrhages at the nose, mouth and ears, with extreme yellowness of the skin, and marks of great debility; as I had little hopes of saving my patient, by persisting in a practice which had in other cases recently failed me, I put him upon a course of bark, wine and ether, applied a large blister to the epigastric region, with much effect, and directed the frequent use of lavemens. He took his medicines in often-repeated doses, and with great freedom; the retentive power of the stomach being assisted by occasional small doses of laudanum. On the 8th day he showed some signs of amendment, which improving until the 11th, a moderate ptyalism then first appeared.

In this case it seemed to me evident, that the calomel had nothing to do with the patient's recovery; that the disease had been resisted by the tonic and stimulant remedies employed; that when this had subsided, and the constitution had recovered its wonted susceptibility to the action of mercury, then, and not till then, the small quantity retained in the habit discovered itself by its usual effects on the mouth. And such, if my observation has not deceived me, is the frequent issue of this medicine, when given as a febrifuge. In short, I suspect that the plan of curing this fever, by exciting the *mercurial action* on the mouth, is too much like that of children for catching birds, by the application of a little salt to the other extremity. But if they are equally futile, I am sure they are not equally harmless; for besides the objection already made, of goading an irritated stomach, and provoking that disposition to vomit, to which the disease is sufficiently prone, it is liable to others of considerable importance. To say nothing of the inattention which it must occasion, to remedies of a milder and more promising nature, its indiscriminate application cannot fail sometimes to coincide with a scorbutic or other habit, (and such there are) in which mercury is particularly destructive; and the salivation, when it happens to supervene, is often in itself a severe, distressing, mischievous, and unmanageable complaint.

I know that this practice is sanctioned by names of deserved respectability; but with due deference to their authority, I am under no apprehension that any scepticism which I can excite, will overbalance the credulity with which their

opinions have been adopted, and I might add, abused: for it is not in this disease only, that mercury is now-a-days employed with novel freedom; the practice has been extended to the typhus mitior, or common slow fever of this country, and to numberless other complaints, without the same colourable pretext, as most of these diseases are very manageable by ordinary and safer means.

Amongst other inconveniences resulting from the careless and immoderate use of mercury, in its ultimate effects on the constitution, I think it frequently induces that morbid irritability, which predisposes the body to consumption, and a variety of chronic and asthenic complaints. Thirty years ago, this valuable medicine, which is unquestionably one of the most powerful agents in the *Materia Medica*, was reserved by practitioners for special and important purposes; *mercury* is now dispatched upon the most vague and trifling errand, by many of our best physicians, and by the unreflecting and imitative part of the profession, is given without weight or measure, as a kind of catholicon. Whether the timid caution of the old, or the extreme hardihood of the present practice, be most reprehensible, is a question which deeply concerns the reputation of the American physician. But I am trespassing the limits which I had proposed to myself. The objections which I have ventured to make to the mercurial practice in yellow fever, will be readily confronted by a multitude of supposed facts which I shall be called upon to disprove. To these at present I can only reply, that the annals of physic abound with examples of the fallacy of experience. A complaint of this kind is as old as *Hippocrates*, and the sagacious *Cullen* has observed, "That in innumerable instances, the effects of medicine, pretendedly founded on experience, are mistaken and false." Of many of these reported facts, which relate to the subject under consideration, I must be permitted to doubt, both for the reasons above assigned, and because I am confident, that wherever the yellow fever has been prevalent, many cases have been stated as cured by this practice, which were either imaginary, or such ephemeral and transitory deviations from health, as did not long suspend the customary action of the medicine. To which I will subjoin one other reflection. It is of the character of this disease, under every variety of management, to run its course with great rapidity; very commonly within a week, sometimes in two or three days, the patient's fate is decided by death, or incipient con-

valescence. It remains to be proved, that a greater proportion of the sick have been recovered by this, than by the purging, sudorific, or other simple treatment. In the cases where this plan has been adopted, it has usually been accompanied by blood-letting, purging, blisters and other febrifuge remedies; so that I can at least resort to the *onus probandi*, that the *salivation*, when it has happened to take place, was at all essential to the cure.

Of the FASCINATION of SERPENTS. By HUGH WILLIAMSON, M. D. and LL. D. &c. &c. in a Communication to Dr. MITCHILL.

THAT serpents have the power of charming, is an opinion of great antiquity. This opinion, however, has lately been treated as one of those phantoms which should sleep "in that same ancient vault," to which many a story of hobgoblins and necromancers have long since been consigned. He can have little claim to attention who supports an opinion merely because it wears the rust of antiquity. But it will be admitted that the contempt of old opinions is not to be taken for a proof of superior knowledge and sound philosophy. However this may be, the reader shall judge whether I am the advocate of truth, or the friend of vulgar errors, when I have expressed my belief, that serpents have the power of taking their prey by a process that has been called Fascination.

It is not to be questioned that a snake is often found with a bird or squirrel in its belly; but writers are divided in their opinions concerning the means by which he gripes those animals. Three methods, very different from one another, have been alleged. The first depends upon his venomous qualities. The second depends on some preternatural power which the snake is supposed to possess, by which he enchants or charms the subject. The third depends entirely upon the power of climbing, which the snake is known to possess.

I conceive that neither of those opinions is well founded, or that they do not account for the phenomena. As the rattlesnake is an American serpent, as he is exceedingly venomous, and is said to be distinguished by the power of taking birds and squirrels, it was natural for writers in Europe to

conceive that his power of destroying those animals depended on his venomous qualities. Many arguments are not required to prove that a serpent neither employs a poisonous bite, nor mephitic effluvia in taking his prey; for it is known by most Americans, that the black-snake is more distinguished by catching birds and squirrels than the rattle-snake;—but the bite of a black-snake is not poisonous.

Another class of writers in Europe conceive that the serpent takes his prey by enchantment. They allege that he possesses some bewitching or seductive power, called charming, by which he attracts birds and beasts, until he devours them. This opinion, as I conceive, is not well founded; nor can it be admitted that the serpent possesses any preternatural power of this kind, while all the phenomena of his catching birds or beasts can be explained by powers which he certainly does possess in common with other animals.

“Nec Deus intersit, nisi dignus vindice nodus
Inciderit.”

We are told by writers, of another class, that the serpent does not cause the bird or beast, in any case, to come to him. The serpent, as they allege, climbs, in the breeding season, to the bird's nest, where he devours the young; and in some cases he catches the parent bird, while she is defending her progeny. They allege also, that in the numerous cases in which a bird has been observed to fly round a snake complaining bitterly, it was not suffering by any thing like enchantment; it was merely attempting to defend its nest or young.

It will not be questioned that the serpent is the common enemy of young birds, that he takes them in the nest or when they begin to fly; nor can it be disputed that he often takes squirrels in the nest. But I contend that in many cases, the bird or squirrel comes to the snake when there is not any nest or young in the case. These are the cases that are called fascination; a term that cannot be used as synonymous with charming, for this word conveys a pleasing idea; but nothing is less pleasing than the process by which the serpent takes his prey. In the cases to which I refer, the serpent does not take his prey by going to it, nor does he take it by any attractive power, as the magnet attracts iron: He takes it by the pure effect of fear. If I might be permitted to coin a word, I would call it *dementation*. I will endeavour to explain the process and the principle upon which it depends.

When we consider the structure of the serpent, recollecting that he is a beast of prey, he appears to be deficient in the necessary means of securing his food. We observe, in general, that carnivorous birds and beasts have speed to pursue, claws to gripe, strength to hold, and teeth to destroy their prey. But serpents, or most of them, have little speed; neither have they claws to gripe, or teeth that are used in destroying their prey. They seem to need some other means of taking their prey. The *gymnotus electricus*, an eel of Guiana, that has very little speed, and can hardly be said to have any teeth, is, nevertheless, provided by nature, with an extraordinary and very effectual method of securing its prey. It feeds chiefly upon fish, and it has the power of killing or stunning them by an electric shock.* It is not alleged that the serpent has any power of this kind, but he is in the habit of procuring his food by a process not less remarkable. It is known that birds and beasts are possessed of a certain kind of knowledge, or instinct by which they are impelled to shun their enemies. It appears also, that their knowledge of an enemy may be acquired; it may be the effect of experience. It is also observed, that they may be more afraid of one enemy than another. The quail with her young, fears the human race and runs from them; but her marks of fear are greater in the presence of a hawk. She attempts to hide herself from him. There have been instances of a quail taking refuge with a man, when pursued by a hawk. It is observed by voyagers, that birds upon newly discovered islands, to whom the human race are strangers, do not fly from them. There are birds who suspend their nests upon the slender branches of a tree, in warm climates, where monkeys abound; but those very birds construct their nests in a different manner, where there are no monkeys to destroy their eggs or young. The pheasant, quail and tur-

* I call the effect produced by the *gymnotus*, an electric shock, because the fluid, whatever it may be, that is discharged by the eel, resembles electricity in most, or all of its properties by which I have been able to compare them. See Transactions of the Royal Society of London, for the year 1775. There is a single case in which the similarity was not ascertained. I am not certain that the fluid, in its circular passage from the eel and to him, has ever produced a luminous spark. An observant gentleman, who sat by the metallic points, when I made the experiment, affirmed that he saw the spark; I did not see it; I have been desirous to have farther experiments made upon a vigorous eel; and a young friend, Mr. Isaac Vanden Heuvel, at my request, made the proposed experiment, Anno 1803, in Demerara, upon a small eel, lately caught; but he could not see the spark in a darkened chamber.

key fly from a dog, fox or wolf, but they do not fly from a graminivorous quadruped. Is it not clear from numerous cases, to this import, that the brute creation may be taught to know their enemy and shun him? They are taught by the same experience to fear one enemy more than another. The serpent is the most dangerous and hateful enemy of squirrels and small birds. Dangerous, because he can approach their nest, even in a hollow tree, the common place of a squirrel's nest; and hateful, because he destroys their young, the object of their tenderest care. For these reasons, the snake is greatly hated and feared by squirrels and small birds; those birds especially, who build their nests in places where snakes abound, as the robin, swamp black-bird and cat-bird. It is not found that snow-birds, or any other birds whose nests were never robbed by a snake, are afraid of him. Nor was any snake of a family too small to swallow birds, ever suspected of charming them. Having observed, that the serpent is an object of the greatest fear to certain birds and quadrupeds, it may be proper to consider the usual effects of fear. It is known that extreme fear stupifies the subject, or deprives him of his understanding. It deprives the brute creation of the correct use of instinct. If we could believe the story, that men have followed a Jack-o-lantern through hedges and bogs, I should pass it to the account of fear. Every man who is versed in history, has noted cases, not a few, in which individuals or whole regiments, being panic struck, have destroyed themselves. Men who could not swim, have thrown themselves into a deep river. They incurred certain death to escape the chance of being killed. Every instance of this kind is in proof, that extreme fear infatuates the subject. It will be allowed, as I presume, that fear has the same *dementing* effect upon beasts that it has upon men. I have seen a quadruped fall apparently lifeless by the effect of fear. We know the manner in which deer are killed in the night, being terrified by the light of a torch. The hare, in many cases, falls dead before it is touched by the dogs. An animal that is exceedingly terrified, may be observed to lose the power of turning its eye from the object of its fear. Hence it is, that many a bird becomes a prey to the snake. Its eyes are fixed upon its enemy. It wishes to escape. It complains and flies round him, but it cannot turn away. Its strength is impaired by its fears and its exertions. Every time it flies round the snake it comes nearer him, until it falls within

his gripe. It is taught by its fear to move, but keeping its eye upon its enemy, it moves in a fatal direction. The serpent does not exert any power during this process, except the power of looking steadily at his object. The eyes of the snake are bright. The bird is terrified; it apprehends immediate destruction; it suffers *dementation* and the loss of life by the pure operation of fear. It deserves notice, that if the eyes of the bird or the serpent are turned off from one another, by some external object, during this process, the bird instantly escapes. I suspect that serpents are not the only animals who have occasionally taken their prey by the operation of fear.

A gentleman who lived in the summer a few miles from Philadelphia, told me that a strange dog, for some days, frequented his house. His servants affirmed that the dog could charm squirrels. He doubted the story; but he was summoned one morning to the window to see the dog charm a squirrel. The dog was sitting in the orchard, a few yards from an apple-tree. He had a tremulous motion. His eyes were fixed on a squirrel that was on the tree; it was jumping from limb to limb, and making a piteous complaint. Its eyes were fixed on the dog, and in its jumpings it came nearer him. It descended below the limbs of the tree on the side next the dog. It came to the ground, and was advancing towards the dog, when the gentleman suddenly threw up the sash. The rattling of the sash caused the dog to look about, and the squirrel escaped. This, however, is a solitary case. The question before us respects the fascination of serpents. Let us call it by this or any other name. It is questioned whether the serpent can bring a bird or squirrel from a distance to where he lies. On this subject there is no want of proof. I have been told by credible witnesses of many cases in which a bird, flying about a snake, seemed to be exhausted, and flew, or was ready to fly, into his mouth. I have heard, from similar evidence, a full description of a squirrel's descending a tree, complaining all the time, until he came to a snake who lay near the root of the tree. I grant that in most cases, the spectator interfered when he saw that the bird or squirrel must be caught in a few seconds, for most people are parties against a serpent. Kalm, the Swedish botanist, tells us, in his travels through America, that he had heard of twenty cases of the charming of serpents. Whether there

was a bird's nest in every case he has not informed us, perhaps he could not, for he had not seen the process.

"Non cuivis homini continget."

Writers seem to have taken strong ground when they allege that the bird has been defending her nest or young, in every case in which it was supposed to be fascinated; or in the several cases in which it has been observed to fly round a snake complaining bitterly. It is difficult, as they know, to prove a negative; but in the present case it can be fully established, that their allegation is unfounded. It has not been observed, as I think, by the most *credulous* writers, that the process of fascination has ever taken place in the winter, else the hypothesis of a bird's nest would be given up. But instances have been noted of fascination through the summer and autumn. Instances have been stated to me of a snake, in the middle of a great road, in the act of taking a bird. The bird was complaining and flying round the snake. In its flight it came nearer and nearer. The spectator, to save the bird, struck the snake, upon which the bird escaped and did not return. There was not any nest in the road; and if there had been a nest of young, at a few yards distance, the bird should have returned to see that neither the man nor snake offended her young. If I had no positive proof in support of my hypothesis, in the case of birds, I would inquire, Why, or upon what principle it is, that a squirrel comes down a tree, greatly agitated, and complaining all the time? Why does it go to the very mouth of a snake that lies at a small distance from the root of the tree? Surely it does not come to defend its young, who are near the top of the tree, if it has any. It does not come to fight the snake. It must be infatuated by fear.

I shall give two or three cases of what is called fascination. A gentleman, near Guildford, in Connecticut, observed a ground-squirrel in the woods in great distress. It was running to and fro, complaining very much. It advanced slowly in the traverse, looking, as he observed, to a particular spot. In that place he discovered a snake. The squirrel paid no attention to him, therefore he drew on his glove and took it up. In this case it is clear, that the superior fear of the snake annihilated the fear of the man. It prevented the correct operation of instinct. It infatuated the squirrel so that

he became a prisoner. In all the cases that are called fascination, we observe a similar perversion of instinct.

A man, named Osburn, by the River Passaick, near Newark, while he was tending a trap, heard a squirrel complaining greatly upon a tree. After many efforts and complaints it came down the tree, and moved to a large snake that lay on the ground. He waited until the snake had nearly half swallowed his prey, when he killed him. It can hardly be worth while to give more instances of a snake taking a squirrel in the same manner, nor to inquire whether the squirrel was defending her young.

As the fascination of birds has claimed most attention, I shall take a single instance that admits of no evasion. Some years ago, Joseph Sandford, of Belleville in New-Jersey, near the side of a great meadow, heard some birds complaining exceedingly. He inquired of Reuben Carter, who stood near him, "What is the matter with the birds?" "A snake is charming them," said Carter. It seems that a large black-snake frequented that place, and Carter had often seen him take birds. It was upon Carter's land. He went for a gun, and Sandford approached a tree, round which the birds were flying. It was a plum-tree that stood in an open space. There was a large black-snake stretched upon a limb of the tree that extended nearly parallel to the horizon. The birds, four in number, were flying near one another at a moderate distance from the tree, but every time they surround the tree they come nearer, complaining exceedingly; their eyes fixed on the snake. He presently seized one of the birds, and swallowed it without shifting his position. He was proceeding to take the birds one by one, when Carter returned with the gun, and Sandford shot the snake. It had, at that instant, caught a bird, which they rescued. The bird had received no injury except that a wing was broken, which was probably effected by a grain of shot. This incident happened about the last of August, and, as Carter had to go about a quarter of a mile for the gun, it is clear that the process was of long continuance, and that the birds were strong in wing. No man who knows Mr. Sandford will question his veracity; and I presume that few people will trifle so far with common sense as to allege that either of those birds was defending its young.

It is hardly worth while to multiply cases of the same kind. This is the process that has always been called fascination, or charming. In this process there is nothing, as

the reader will discover, that needs the alliance of credulity or superstition. The serpent, as I observed above, does not, for he cannot, take birds or beasts of any kind except those who have reason to be very much afraid of him; those whom he has injured exceedingly. How does he come to know that he can take birds of this description? How did he discover that, when he exposes himself to view, if he should draw the attention of such a bird, he might eventually take that bird by watching it steadily? To these questions I have no answer, except that such is the power of instinct. If the serpent had made the experiment upon a panic-stricken bird, such would have been the result; and there is a wonderful analogy between instinct and reason or experience. The patient waiting of a spider in its lurking place until a fly shall throw itself into his web is not less remarkable than the watching of the serpent. We do not inquire, Who taught either of them how it should get its food?

Remarkable Instance of HAIR growing on the INNER COAT of the URINARY BLADDER: Communicated to Dr. MITCHILL, by Dr. AMOS HAMLIN, of Durham, Greene County, (N. Y.) September 3, 1806.

I HAVE taken the liberty to trouble you with the history of a very remarkable phenomenon in the physical world, that has lately occurred in my practice. The case is this: The wife of a Mr. T. of this place, aged about twenty-four years, was delivered of a child on the 16th day of June last. The child was still-born; but I was informed that the woman appeared for some days as comfortable as most women are after delivery, and on the sixth day after delivery she was taken with a fever, whose symptoms (her physician informed me) appeared to be of the typhous kind, of which fever she continued to languish until the 14th of July, and then died. She was not my patient, but attended by Messrs. Cook and Winer, who informed me that their patient was affected with no uncommon symptoms, except a remarkable disorder of the nerves, and that they were fully of the opinion that she died of a typhous fever. I saw the woman the third day before her death, and was impressed with the idea that her disease was puerperal, that she laboured under some powerful obstruction, and that there was a large col-

jection of morbid matter in some part of the abdomen; but her nurse and attendants told me that they were not sensible of any kind of obstructions whatever, and that the functions of nature were performed as usual. She had been in a state of delirium for some time before I saw her, but it was not violent; her pulse was extremely quick and fluctuating, and she was attended with a sighing respiration and subsultus tendinum. I was passing the house the day that she died, and called and saw her expire, and requested the liberty of examining the body, which was granted by her friends. I opened the body in the presence of Messrs. Cook and Winer and a large number of spectators, and on removing the integuments from the abdomen, the urinary bladder appeared very much distended, and about one half of that organ appeared to be in a mortified state; the ureters appeared a little distended, and, on that side of the bladder which approximates the right ovarium, there was a tumor nearly of the size of an hen's egg; but, on opening the bladder (you may judge my surprise), I found its cavity completely filled with a fetid sordes-like matter, intermixed with hair! Previous to my opening that organ, I had taken it out of the body. I emptied out the contents that were not attached to its coat, and found that the tumor (above described) extended into the bladder, and that the hair grew from the inner coat of the bladder, that covered that tumor.

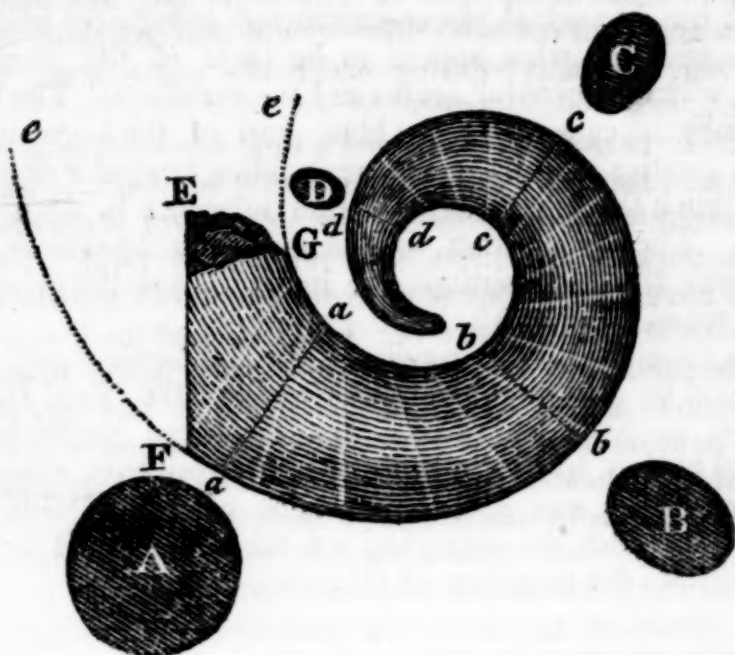
The extension and contraction of the bladder had worked the hair into an oval figure, which, when washed and cleansed from the matter that adhered to it, and thoroughly dried, weighed two drams. Upon cutting into the tumor on the out side, I found that it contained a bony substance, and some matter that appeared to me to partake somewhat of the organic structure of the brain. The intestines were much distended with air, and that portion of the omentum which usually descends upon them appeared to be entirely obliterated, and there was a slight inflammation on that part of the uterus that came in contact with the bladder. The kidneys appeared to be perfectly sound, and the rest of the viscera in a natural state. The woman had been married less than a year, and the above-mentioned child the only one she has had. The hair is generally from four to twelve inches in length, and I have measured one that was eighteen inches long. The bulk of the hair, with the matter that adhered to it when in the bladder, was five inches long, and three in diameter. The mother of the deceased informed me,

that her daughter was troubled with a strangury for some length of time about three or four years ago, and that she has not known of her being afflicted with that complaint since, until her pregnancy, during which she made some complaint.

I think there must have been a total suppression of urine for some days previous to her death, although it was not discovered by her attendants ; for the contents of the bladder was as thick as good pus, and remarkably fetid. I think it will puzzle the philosopher to account for this phenomena in a satisfactory manner ; but I will hazard the conjecture, that the naturalist will seek for a solution in the theory of conception ; and is it not possible that this fact may throw some light on that interesting subject ? I have sent that portion of the bladder and tumor to which the hair adhered, and the hair, with this letter, for your inspection.

DESCRIPTION of a PETRIFIED HORN, from the Helleberg, a Mountain westward of Albany: In a Letter from SIMÉON DE WITT, Esq. Surveyor-General of New-York, to Dr. MITCHILL, dated Albany, 26th Sept. 1806. With a Figure.

I AM in the possession of a very handsome petrification, of which I send you a drawing. It appears to be that of the horn of an animal. It was found in the body of a stone that had been about two years in the wall of a fire-place in the soap and candle manufactory of Mr. John Grant, of this city, where it had, during that time, been exposed, in a regular process of business, to the action of fire, and also to the annual inundations of the shore of the river on which the building was situated. The stone was brought from the Helleberg, which is about fifteen miles to the westward of this place, and is of that kind which in these parts is sought for on account of its possessing the property of bearing the impressions of fire with least injury. Mr. Grant, who has politely presented me with this curiosity, has promised to make more particular inquiry relative to the place whence it was taken. I have also a part of the stone, with a considerable portion of the bed of the horn remaining entire in it.



The line E F in the drawing was the face of the stone, and the only part of the horn exposed, or not buried in it. E G shows a broken part. The dotted lines extended to *ee*, are designed to represent how the horn has probably been extended in its primitive state. A, B, C, D are transverse sections on the lines *aa*, *bb*, *cc*, and *dd* respectively, by which you will see that near the butt end of the horn it is exactly round; and thence toward the smaller end the sections become more and more elliptical, having their largest diameters horizontal when the horn is laid flat. In these respects, this, I conceive, differs from the horns (as far as I know) of all other animals of the sheep kind, the sections of which, I believe, are always angular, or inclining to that shape. The curve is not an oblique spiral, as that of the ram's-horn generally is, but lies (to use the language of mathematicians) in the same plane. This also differs from the cow-horn in the marks which encircle it, and which are supposed to indicate the age of the animal. These, as you see by the draft, extend nearly to the point, whereas in cows they do not proceed far from the bottom of the horn.

The drawing was made by laying it on the paper, and thus marking its outlines; of course you have the exact size re-

presented.* It is made smaller than the subject represented, which has in several places extraneous substances attached to it, and also what appear to be parts of the cornuous shell, which, in general, seems to have exfoliated. The body generally appears to be the bony part of the horn, as the small cavities on its surface, resembling irregular dottings, have much the appearance of that substance in its natural state. The petrification weighs in air 3lb. $5\frac{1}{2}$ ounces, and in water 2lb. $1\frac{1}{2}$ avoirdupoise; hence its specific gravity is ascertained to be 2,610.

On examining the engraving of the California sheep, done on wood by Anderson, and published in Med. Rep. Hex. I. vol. vi. p. 237, I conclude that this horn probably belonged to that species of animal. As you have examined the one which was in the possession of Mr. M'Gillivray, and from which the engraving was taken, you will be able to ascertain the propriety of this conjecture.

TOPOGRAPHY of SAVANNAH and its Vicinity; being a Report to the Georgia Medical Society, by Dr. J. E. WHITE, a Committee for that purpose, and read May 3d, 1806: To which is added an Appendix, containing a few Remarks on the Weather and Diseases of 1805, read June 7, 1806.

THE city of Savannah is built on the south side of the river of the same name, about seventeen miles from its junction with the Atlantic ocean. Its site is a level and elevated sandy plain, in length from East to West Broad-streets about thirteen hundred yards, and in breadth four hundred and seventy-five. Its course N. $77^{\circ} 30'$ W. and N. $12^{\circ} 30'$ E. Variation of the compass in 1805 was $6^{\circ} 30'$ east.

The plan of the city is highly judicious, being laid out into large squares, and the streets intersecting each other at right angles. The narrowness of the streets is perhaps one of the most objectionable parts of the plan; the central ones

* This has been reduced in the preceding figure. The true dimensions were as follow: The longest diameter of this spiral petrification was about nine inches, and the shorter nearly six. Distance from *a* to *a* two inches and six-tenths, from *b* to *b* two inches and one-tenth, from *c* to *c* one inch and seven-tenths, and from *d* to *d* nine-tenths of an inch.

dividing the wards, not exceeding 75 feet, and the others in each ward being only $37\frac{1}{2}$ feet. The wards are subdivided into tithings, which are divided by a lane $22\frac{1}{2}$ feet wide. These are also objections to the general plan, as they serve in too great a degree as receptacles for filth.

The squares laid out at a late period, are each 275 by 270 feet, including the streets, except Jefferson, Lincoln, and Price-streets, each 50 feet wide. East, West, and South Broad streets, are 100 feet wide.

From the line of the Bay to the top of the Bluff, the distance is calculated according to the curve of the river, and varies from 175 feet at East Broad-street, to 450 at West Broad-street.

The height of the Bluff varies considerably, and, in many places, the ascent is almost perpendicular. About the lower end of the city it is 35 and 40 feet high, decreasing to about 30 feet at Abercorn-street, and continuing, with little variation of this height, to West Broad-street; from thence to Farm-street, the distance 800 feet, the decrease in the height of the Bluff is about a foot in every hundred. From Farm-street to the marsh on the western side of the city, the descent is very gradual, and the distance, on an average, about 500 feet. Persons who have resided many years in the city have observed a visible increase in the height of the Bluff, arising from the action of all winds, between the N. W. and S. E. which blows the sand from the bottom to the top.

From the western boundary of the old city to the fort, the bay is planted by a double row of trees, at about twenty feet distance from each other, forming a pleasant walk in the summer months, adding to the beauty of that part of the city, and contributing to its healthiness in a considerable degree. These trees, as also most of the others very generally planted in the city, are what are commonly known by the name of the Pride of China, or India; by botanists entitled, *Melia Azederach*, and are admirably calculated for our soil and climate. They are easily reared; are speedy in their growth, and afford a thick and almost impervious shade to the rays of the sun.*

* To the members of this society these slight topographical observation* may appear unnecessary, and probably thought unconnected with the subject of this report. But it may be observed, that to obtain a correct knowledge of medical topography, we should possess some information

Excepting that part of the city which lies below the Bluff, it is not, in general, very compactly built, and, with a few exceptions, the buildings are of wood. The common, southwardly of the city, extends nearly east and west the whole length of it, and south about half a mile to the woods. Like that part now built on, this is almost a perfect level; the evenness of the surface being only interrupted by a few excavations and ridges, the remains of ditches and parapet walls formed for the defence of the city during the revolutionary war. These are now almost effaced in most places on the south side of the city, but at the east end, contiguous to the old fort, they are still very considerable, and the fortified lines may almost be traced.

Spring-hill, so called from its being the source of some never-failing streams of water, is the most considerable eminence within the limits of the town. One of these springs supplies a distillery; and the superfluous water is afterwards discharged into the neighbouring low grounds.

Between Spring-hill and Savannah river there are several hollows or gullies, but they are not of such a nature as to influence the medical topography of the place. There are two tan-yards at the west end of the city contiguous to each

respecting the face of the country; its elevations and depressions; the quantity and proportion of low and high grounds; the number and magnitude of streams; and various other local circumstances. In relating facts, and detailing alterations which have been produced by the art and industry of man, or by fortuitous causes, on the surface of a country, we should not confine our views solely to the present moment. To those who succeed us, it may be satisfactory to be informed what *was*, and thus they may be enabled to calculate what *may be*.

The knowledge of apparently trifling circumstances, in the geography and topography of a country, when taken in the aggregate, frequently leads to important deductions, and often unfolds facts which otherwise would remain obscured. In laying the foundation of a city, or in fixing the site of a private dwelling, it will enable us to judge of their eventual healthiness; and to this knowledge, furnished us by writers in almost every age, we are indebted for some of the soundest arguments in favour of the domestic origin of yellow fever. It has taught us that similar localities, aided by like collateral circumstances, formerly produced in Rome diseases not differing essentially from those which have of late years ravaged New-York. If this knowledge were regarded with attention, and if the voice of experience and truth was not silenced by the clamours of interest and ambition, incalculable benefits would result to mankind. It would warn us against the erection of cities in *situations*, and in a way which ultimately lead to dreadful consequences. It would forbid their erection on the borders of a swamp or marsh, as pestiferous as Avernus, and more to be feared than Lerna's famed pest. What mortality has not the pestilential air from Batavian swamps and rice-fields produced! And what ———.

other, and vats for a third have been made, but not applied to their intended use.

South of these, and about two hundred yards from Springhill, are the places for slaughtering cattle.

The depository for the dead is a large square enclosure, within a high brick wall, about seventy-five yards from the buildings on South Broad-street; and at a short distance southwardly from this is the burial-ground for negroes and other people of colour. While the neatness and spaciousness of the former, together with the attention which is properly bestowed on the interment of the dead, is worthy of commendation, the extreme carelessness (bordering on an indelicate want of feeling towards a race of unfortunate beings) which is too commonly evinced in burying the negroes, merits the harshest censure. The fact is known, that their bodies are sometimes scarcely covered to a sufficient depth to secure them against the depredations of turkey-buzzards and other carnivorous animals. Decency, humanity, and that sacred respect which we should pay to the remains of the deceased, whether Africans or whites, whether infidels or Christians, speak aloud against this practice; and a proper regard for our own health alike forbids it.*

Contiguous to the woods, bordering the south common, are a few small ponds, which are generally dry in the summer season, unless it proves to be very rainy.

The soil of the city is sand, free from any admixture of loam or clay, which last is only very partially found at the depth of several feet.

The water which is used for drink and culinary purposes within the city is pure, cool, and healthy. Sometimes, however, it produces diarrhœa in strangers from the upper country, if freely used. It is about the temperature of 68° of Fahrenheit, and is found at different depths, varying

* Subsequent information has induced me to modify the remarks in the last passage. The negroes have a place of burial allotted for their exclusive use, are permitted to bury their own dead, and, if improperly done, if my information be correct, the censure belongs to them. The indelicate interments to which I have alluded, were of some newly imported Africans, who were placed in the ground without coffins, and to their masters belong the shame and dishonour of such acts. The world may pass over deeds like these without a mark of disapprobation; but let *such* men remember, that these *poor beings* are *alike* men; have souls immortal; and, like themselves, will one day have to stand before the throne and tribunal of an omnipotent, a just, and merciful Being. He knows not the distinction of colour.

from sixteen to twenty-five feet; increasing nearer the Bay, being greatest at the fort, and least at the western end of the city. It lathers easily with soap, and does not, I believe, hold in solution any mineral particles; but as just remarked, it is less healthy for persons unaccustomed to it, than the softer water of springs, wells, and rivers. There are perhaps, but few places situated like Savannah, and as near to the ocean, in which the water is more cool and pleasant. Does this arise altogether from its filtration through the sand?

Imperfect as this sketch is, it would be still more so if the situation and nature of the contiguous country were not to be noticed. Whether it was contemplated by the society that the view should be extended beyond the narrow limits of Savannah I know not; but it is evident that there is a close and intimate union between the medical topography of the adjoining lands and the atmosphere of our city, consequently influencing in a very great degree the states of disease and health. It is an undeniable truth, that the neighbouring low grounds are the principal, I might say, the exclusive sources of those exhalations which, floating in the atmosphere, are the causes of our summer and autumnal diseases. The momentary glance of an eye could not fail to impress the mind of any intelligent stranger with this fact. Hence then, no apology is required for taking a slight view of them in this respect.

Hutchinson's island, situated immediately in front of the city, extending several miles above, and some distance below, is an uniform plain, except where it is broken by dams to keep out the water. It is often overflowed both from freshes and high tides. It divides Savannah river into two branches, and the greater part of it is cultivated in rice. The land on the north side of the back river is similar in its situation, and cultivated in a like way. The distance from Savannah to the swamp and low grounds, on the Carolina shore, is little more than a mile.

Adjoining the east and west boundaries of the city, the ground was originally swamp, but is now converted into rice-fields.

About S. W. and S. E. from the precincts of Savannah, there are considerable and extensive swamps, principally remaining in a state of nature. Their precise extent I do not know, not having had it in my power to obtain the requisite information. Both sides of Savannah river, from the city

to the ocean, consist of swamps, which still remain uncultivated, except for a few miles on the south side. The land above the city, on the main, is also under rice-cultivation.

From what has been stated, a few deductions may be drawn, and I therefore claim the indulgence of the society while I make such remarks as, springing from the nature of the subject, present themselves immediately to my mind.

1. The plan of our city, exclusively speaking, particularly in a climate like ours, is calculated for healthiness; it admits of a free ventilation in all parts of it except below the Bluff, where almost solely the influence of winds from the N. W. to N. E. is felt.

2. Situated on a plain consisting of sand, which retains the heat of the sun's rays, and reflects them strongly, and possessing few declivities to carry off superfluous moisture, it might, on the first view, be imagined that these circumstances alone would make it unhealthy. But the *looseness* of the soil, though no barrier to the retention and reflection of heat, is in some measure a preventive of those effects which otherwise might ensue from its levelness. If more compact, water would remain longer on the surface; consequently, when exposed to the action of the sun in summer, sometimes producing a state of the air bordering on blood-heat, it would soon run into a state of putrescence, and this moisture would aid the septic tendency of vegetable and animal matter. The extreme porosity of the soil on which the city stands admits the absorption of water with great facility, and hence it never stagnates after a rain, except it be immoderate, or in places where the earth is hard on the surface.

3. But while the nature of the soil on which our city is erected does not permit the stagnation and consequent putrefaction of water, it is favourable, from possessing few declivities, for the collection of animal and vegetable filth of various kinds. The extreme carelessness so commonly manifest in the characters of our negro servants, and their natural aversion, I may with propriety say, to cleanliness, is a powerful cause for the speedy and abundant accumulation of recrement: and when this propensity is not checked by their masters, or perhaps even encouraged by a similar disposition in themselves, the evil is increased. To obviate it, and to remove the various matters which are daily collected in our yards, kitchens, stables, &c. a scavenger is appointed. I have reason for asserting that the duties ab-

solutely belonging to his office are too unfaithfully performed, and much matter that should be removed is suffered to collect and remain in the open lots, squares, and principal streets of the city. Evils are the consequence of this carelessness; they should not exist, and might be prevented; and they will become more extensive in their influence as our city becomes thronged with inhabitants. I would lament, if, by our folly, we should leave so melancholy a lesson for our children: they would, I trust, profit by it, and by preventing the causes of disease, act more wisely than their fathers. Let them be economists of time, as well as of health. Ills are more easily prevented than cured.

4. It would be laying a partial stress on the evils just recited, if I were not to notice the filthy state in which most of our yards, back-buildings, and particularly our privies are kept. This comes, in general, more immediately under the cognizance of the eye, and I can aver with safety, that there is no one present who has not, and who does not daily witness the fact. It needs no power of reasoning to elucidate the mischief which is the offspring of domestic uncleanness; and, speaking to medical men, it becomes still more unnecessary. We have had multiplied facts from every quarter of the globe, and from the remotest era of time, to substantiate the importance of cleanliness, and to evince the evils which deservedly result from the neglect of it.

5. The experience of ages, and the observations of discerning and enlightened men in almost every country, particularly by Lancisi, in Italy, all tend to confirm the truth, that trees contribute to purify the air, and wherever planted by nature or art, between mill-ponds, swamps, or marshes, and dwellings, towns, or camps, oppose a partially successful barrier to the progress of impure exhalations.* The advantage then to health, in the sickly months, of the trees planted on the Bay is evident; but as tending to arrest the miasmatic particles from the immense and prolific source of

* In the works of the author just mentioned there are several letters confirming the truth of the salutary effects of forests, and containing multiplied reasons against the destruction of some woods in the Papal territories which had been proposed to be destroyed. Facts might be multiplied on this head. Who has not noticed the speedy appearance of febrile diseases in new countries, and that they appear to keep pace with the footsteps of the axe-men?

them in their front, their power is but feeble.* Their number should be increased, and as being equally necessary, they should be continued to the west end of the city in front, and also extended along its eastern, southern, and western sides. This subject demands the attention of our corporation, and a few hundred dollars thus expended, would add to the beauty of our place, the convenience, pleasure, and health of our citizens.

6. From the slight view which has been taken of the nature and extent of the low ground in the vicinity of Savannah, it will be observed that the city is almost surrounded by it. When long acted on by a hot sun, an immense decomposition of vegetable matter (particularly after the rice-fields are drained) must ensue; the consequent emission of mephitic particles will be great, a vitiated atmosphere the natural effect, and diseases the inevitable product.

7. It is a supposition somewhat prevalent, that some parts of Savannah are more unhealthy than others. From the extent of my observations, this idea is correct, and it admits of easy explanation. I would place the situations below the Bluff and those on its declivity *first* on the scale of sickness. They are most contiguous to the rice-fields

* The fact is well supported, that the atmosphere of the open sea, and also over large bays and lakes, whether the water be fresh or salt, is favourable to health, unless contiguous to unhealthy shores. Dr. Lind has limited the influence of marsh exhalations to three leagues. This must vary from circumstances. The violence and duration of winds which waft them from the places giving rise to the emanations, and the opposition which in their course they may meet with from the interposition of woods, elevated ground, or other barriers, have a decided effect in determining the extent of their pernicious tendency. The quantum of miasmata extricated has also great influence. This must be in proportion to the extent of surface from whence they issue. Thus, the exhalations from a source of a quarter of a mile, or even a mile square, may be so blended with the air as not to extend their deleterious influence to the distance of one or three miles, especially if there should be an intervention of forests, hills, or mountains; we may very readily conceive the reverse will follow where there is an extent of marshy and muddy surface (the last highly imbued with vegetable matter) of eight or ten times this extent. I partially exclude as the source of evil such parts as are covered by the diurnal motion of the tides. If Kingston, in Jamaica, upon the authority of Mr. Lempriere, is sometimes rendered unhealthy by exhalations from a lagoon nine miles distant, what must not Savannah experience, immediately encircled by swamps, marshes, and rice-fields? The prevalence of diseases in summer and autumn, their too frequent malignancy, the number of relapses, the tardy convalescence while patients remain within the sphere of action of the impure air, and the pale or sallow complexions of numbers, afford a melancholy but just reply.

on Hutchinson's island, and the Carolina shore, and have nothing but a narrow river to intercept the miasmata. The buildings in Carpenter's Row (being the eastern boundary of the city) are also very unfavourably situated for health. They are immediately in the neighbourhood of extensive rice-fields, and exposed to the action of winds from the eastward, which being *cool* and *damp*, are always unhealthy in the autumnal months. Those who reside at the western end are alike exposed to the influence of miasmata from swamps and rice-fields. The houses on the Bay are, in some measure, protected by the trees; many of the buildings are situated *below* the most elevated parts of the Bluff, and most of them on a level with it; yet, notwithstanding the effluvia are partially arrested by these barriers, it is remarked that sickness generally prevails more in this quarter than in the central parts of the city.* Repeated observations I think confirm what I have stated, and that a residence, most distant from the Bay, or the eastern and western limits, promises most exemption from autumnal fevers.

8. Powerful as the influence of states of the weather is acknowledged to be upon the diseases which accompany and succeed them, it is plainly a melancholy fact, that whatever may be the *sensible* variations in our atmosphere, from the nature of our climate, and the existence of causes rivetted to it, and to the soil in the vicinity of Savannah, it must ever remain unhealthy.† From time immemorial these

* Marsh miasmata are most active in their ascent, because then most concentrated: hence, I have long viewed a residence on the brow of a hill, (however elevated) near to a river, creek, swamp, or marsh, as more unhealthy, than one several hundred yards distant from it, provided the situation be dry. The observations of Dr. Robert Jackson confirm this fact; and it has been forcibly exemplified by what has occurred at Brewton-Hill, distant about two miles below Savannah. It has ever been considered, and justly so, as dangerous to reside there in the summer and fall. The house is on the edge of a lofty hill, perhaps fifty feet above the level of the river, distant a third or half a mile, and the intermediate space is a rice-field. It has no protection, and the forms of disease are in the most concentrated and active state. It was here the case of inflammatory remittent fever (see Med. Rep. Hex. II. vol. iii. p. 249) occurred, which, in opposition to great depletion, manifested uncommon arterial action for an unusual period. Is it not highly probable this was owing to the unceasing application of the original cause of the disease? And are we not warranted in answering in the affirmative, by our knowledge of the common fact, that a recovery from autumnal fever is generally difficult without a removal beyond the influence of the foul atmosphere?

† The justness of this remark might be extended throughout almost the whole of the lower country.

causes have been known to produce multiplied diseases; and how much greater and more septic the exhalations are in the months of September and October, after the rice-fields have been drained, and the rice cut, and when to hot days succeed cool nights, with great dews, fraught with the poison extricated during the day; let the increase of diseases say, let the fatality in those months declare.* But though I will not admit that *any* meteorological states will more than partially prevent the general prevalence of our endemic diseases in the summer and autumn, they are certainly influenced, in a greater or less degree, by very immoderate rains, deeply overflowing the swamps, &c. by violent winds and their direction, and by the degree and duration of summer heat.† The exhalations which are diffused are not uniform, either as to quantity or activity. Various circumstances, some of which have been already noticed in this paper and elsewhere, effect correspondent changes in our atmosphere. This, with the variable predisposition of the system to disease, will, in part, aid us in accounting for the want of uniformity in the diseases of different seasons.‡ In the observations I have

* The pernicious effects which ensue from the exposure of the muddy surface of low grounds to the action of the sun might be prevented; for it is well known that while marshes, mill-ponds, rice-fields, &c. are covered with water to a depth sufficient to prevent its putrefaction, they are not injurious. But as soon as they are drained, evaporation takes place from the oozy mud, and this is increased in virulence by the decomposition of vegetables and small animals, which may have found support in the water. The destruction of vegetables in cultivated or uncultivated low grounds, produces similar effects as draining them. Two reasons may be assigned for this: First, the shade of vegetables protects, in a great degree, the moist ground from the rays of the sun; hence preventing evaporation; and, secondly, the experiments of Mr. Ingenhouz and others, have demonstrated, that vegetables purify the atmosphere by absorbing the noxious portion of it, and during sunshine emitting pure air. From this fact we are enabled to account for the evident benefit which results from bordering marshes and mill-ponds with as many trees as possible, particularly such as are of speedy growth, as the willow: hence we learn the danger which arises from placing dwellings near low grounds without a protection from trees; and hence also, the evils of draining rice-fields to get off the crop might be avoided by overflowing them as soon as this is effected, and letting the water remain until frost.

† Drs. Clark, Lind, and others have noticed the effects of continued and heavy rains in meliorating the state of the atmosphere. When they are succeeded by cool weather, they prove favourable for health; but when moderate, and particularly if succeeded by hot weather and light winds, this change is not produced.

‡ If we rest *solely* on the evidence of facts as *presented to our senses*, and from them venture to foretel the diseases which will prevail, we shall be often deceived. They sometimes lead us to make erroneous deduc-

published on the soil, climate, and diseases of Georgia, I have noticed the effect of the hurricane in September, 1804, in destroying the noxious quality of the atmosphere, and arresting, as it were, the progress of diseases. This was evident at the time, and it has been confirmed since. September and October are considered as our most sickly months, and the latter as the most fatal. In the former of 1804, there were forty-nine deaths, twenty-one of which were of persons between twenty and forty years of age; but in October there were only *twenty-seven* deaths; twelve of which were between twenty and forty years. The storm was on the eighth of the month, and though it could not be supposed to exert an *instantaneous* influence, in rendering the air salubrious, or in preventing morbid action in those who had already the embryo of it in their systems, the salutary change was evidenced from the diminished mortality in October; and this, *notwithstanding the increase of the exciting causes of fever*, the consequence of the hurricane. I have said the deaths in October amounted to twenty-seven; in the same month of 1805, with *no antecedent circumstances* to warrant the expectation of so great a mortality, the deaths were upwards of seventy.

9. If it should be asked from what points of the compass blow our most healthy winds, I would reply, that as their purity greatly depends on the nature of the ground over which they pass, I believe the southern and western are

tions, though generally of importance in forming a judgment of the salubrity of a season. Similar states of the weather, as respects the violence and course of winds, the quantum of rain, the range of the thermometer and barometer, the fall of dew, the proportion between the temperature of the day and night, or the portion of electric matter discharged into our atmosphere, will not always lead to the same result. We are then compelled, in some instances, to resort to an invisible agency—a certain secret *something* floating in the atmospheric regions, to explain the variability of diseases, (even of such as are endemic) their being in some years epidemic to an extent of hundreds of miles, travelling, as it were, on the wings of the wind, and in others confined to narrow limits. This occult, this inexplicable source of epidemics is what the father of physic called a “divine something;” what Sydenham attributed to mineral exhalations; what many other eminent physicians have acknowledged; what some have attempted to unravel; but which has hitherto eluded the researches of chemists and philosophers. I wish I could, without infringing the sacred boundaries of truth, say, our diseases depend *solely* on this unknown and insensible state of the air. Be this *latent* malignity wanting or not, there is abundant, and, I fear, inexhaustible fountains for their production. Nature has chained them to our climate; she has deeply fixed them in the soil.

most so. Dr. Currie has said, in his "Historical Account of the Climates and Diseases of the United States of America," upon the authority of a correspondent in Georgia, that the south wind, which prevails too frequently for the health of the inhabitants, is damp, sultry, inelastic and oppressive, at all seasons, but amazingly so in the summer and autumn. The idea of a wind being at the same time "damp and sultry" is somewhat irreconcilable, but the fact is not as stated. Our most prevalent wind is not from the south; it is the driest we experience; nor is it as "inelastic and oppressive" as winds from the eastward; hence a southern front to our dwellings is deemed not only most pleasant, but most salubrious. The healthiness of winds from the south is, however, somewhat diminished by the exhalations from the immense quantity of filth, improperly and incautiously deposited on the south common; and all the winds from north-west to south-east inclusive, sweeping in their progress a vast surface of swamps and rice-fields, necessarily in their passage take up those particles which lessen their purity, and are unfriendly to health. Local circumstances, whether they be natural or fortuitous, influence the healthiness of winds; and hence a north, a west, or an east wind may be salubrious in one situation, but the reverse in another. This, I repeat, is determined by the nature of the ground they last pass over. It is a fact commonly noticed here, that winds which blow from the east in the summer and autumnal months, though coming from the ocean, are peculiarly unhealthy, produce a great degree of lassitude and oppression, predispose the system to fever, and very frequently produce relapses. An explanation of this I have given in another place; but I will here add, that easterly winds are most impregnated with humid particles; and we know the power of a moist atmosphere, not only in keeping suspended, but in diffusing effluvia.

(To be continued.)

*A CASE of LOCKED JAW: Communicated to Dr. MILLER
by EZEKIEL OSTRANDER, M. D. of New-York.*

ON the 15th of July, 1804, Mr. John Neville, a young gentleman, aged about eighteen years, who had for some time acted as clerk in the Post-Office of this city,

severely wounded the ring finger of his right hand, and applied to me for surgical assistance.

I found, upon examination, that he had received a very bad compound fracture near the joint which unites the first bone of the finger to the metacarpal bone; and though it occurred to me at first sight, that amputation would be the most certain mode of insuring to my patient a speedy relief, yet as he was extremely anxious to preserve his finger, and as I did not then suppose that his life could possibly be exposed to danger from the accident, I conceived it to be my duty to endeavour to comply with his wishes.

Accordingly I reduced the fracture, dressed the wound, and applied the splints, as well as the situation of the part would admit: I likewise prescribed a cathartic of calomel and rhubarb, as I found his habit of body to be rather costive; giving him at the same time a solution of Sacch. Saturni, with laud. liquid, with which I advised him to bathe his hand frequently. I dressed the wound once or twice a day, accordingly as appearances indicated, with simple cerate; and within a few days after the accident happened, the contused or lacerated parts of the finger sloughed off; suppuration and granulation took place; the bones appeared to unite, and every other circumstance concurred which was necessary, in my opinion, to promise the most favourable issue.

But in this agreeable prospect my expectations were unhappily disappointed. He had been heretofore accustomed to call at my house, for the purpose of having his wound dressed; but, on the 19th of August I received a message, requesting me to wait on him. On my arrival at his lodgings I found his pulse to be more full and frequent than natural, his tongue white, and the heat of his skin somewhat increased beyond what I had formerly perceived. He likewise complained of a stiffness in the muscles of the under jaw, as well as of a swelling of the parotid and submaxillary glands.

With respect to the existing febrile symptoms, I imputed them to fatigue, which he had experienced by walking a considerable distance the day before, and to debility occasioned by the anxiety of mind under which he constantly laboured, from an idea that he would never be able to follow his business (writing) with the same facility as formerly, and by a more rigid abstinence from generous diet than comported with my wishes and directions.

To remove this febrile affection, I prescribed a cathartic of senna, manna and salts, and ordered the copious use of some warm diluent drink, and, at the same time, directed that his feet and legs should be immersed in warm water. This was productive of the desired effect.

Having thus accounted for the appearance of fever, I attributed the stiffness of the jaw, and the swelling of the glands, to the calomel, which he had occasionally taken to procure evacuations from the bowels; and prescribed some liniment. vol. with laud. liq. which I directed to be frequently applied to the part affected; but, from this application my patient derived no great benefit. I, however, continued to visit him daily, and found that the wound was healing very fast; that the bones were united, and the finger almost straight. I likewise, at this time, which was about the 20th of August, observed some slight twitchings, or spasms, in the muscles of the back and neck, but so inconsiderable in number or violence as to excite no alarm in my mind, with respect to their nature or consequences. With a view to improve the digestive functions, and obviate too great a degree of debility, I ordered him some Madeira wine, with Hux. tinct.

On the 22d of August, when the finger had, for many days, been not only free from pain, but the wound almost entirely healed, he was taken with violent symptoms of tetanus; and, as I resided at some distance from my patient, and it being in the night, Dr. George Anthon, a very respectable physician, who resided in the vicinity, was called to his assistance. On our first interview we were convinced that these symptoms originated from the fracture. Mercurial friction was accordingly ordered, and to be repeated along the course of the spine, night and morning, and large doses of laud. liq. were, for several days, frequently administered. From the friction, however, no good consequences resulted, and the thebaic tincture answered no other purpose than to mitigate the violence of the spasms. On the 26th of August a blister was applied between his shoulders, but without producing any beneficial effects. His lower extremities, which had now become stiff and inactive, were rubbed with spt. camph. and liq. laud. and in order that we might examine whether there was any lodgment of matter below the wound, we laid it open with a scalpel. Nothing, however, was to be found, and it was remarkable that he had not complained of the slightest pain in his finger for two weeks previous to this period. We continued to administer large doses of laud.

liq. with the addition of a quart of sherry wine daily, except with some occasional intermission, for the sake of procuring an evacuation from the intestines by enema; but the spasms still continued, and increased in number and violence till the 30th of August, when death closed the scene.

Thus, a young man of promising talents, at his first entrance on active life, fell a victim to the trifling circumstance of a fractured finger; and that too in an age when the science of medicine has arrived to so great a degree of perfection, that occurrences of this nature, from causes so trivial and insignificant, must be matter of extreme regret, particularly to the medical world. It ought to excite those gentlemen who are qualified by their talents and professional experience, to the most persevering and indefatigable inquiry into the cause which gives rise to such dreadful catastrophes, and into the most efficacious mode of counteracting such baneful effects. Have not means been discovered of curing and palliating many of the worst diseases incidental to man, and of totally banishing others from the sad catalogue of human evils; and shall this tremendous calamity be suffered insidiously to undermine the constitution, and bring on death, while the cause and mode of cure raise but little curiosity, and are suffered to remain dormant among the arcana of nature? Forbid it science! Forbid it philanthropy!

Upon a subject of this nature, it becomes a young physician to express himself with caution and diffidence; but would it not be advisable for gentlemen, whose professional reputations are well established, to make some experiments of the most vigorous nature that the science of medicine has put in their power, to subdue those horrible spasms, which owe their origin to the most trifling, or rather to latent causes, and which have hitherto set the healing art at defiance? Might not the actual cautery, if applied to the part which is supposed to be the source of this irritation, be calculated to remove the evil?

*Remarkable CASE of the SWALLOWING of a SILVER SPOON,
and of the EXCISION of it from the INTESTINAL CANAL,
with the RECOVERY of the PATIENT. By Dr. SAMUEL
WHITE, of the City of Hudson; in a Communication to the
Editors.*

HAVING noticed in some of your introductory observations, your decided approbation of practical remarks in preference to those of a speculative nature, and noticing that *chirurgical* cases were comparatively small in number, with those of a medical kind; I communicate for your Repository, if judged worthy a place, a surgical case, which fell under my care last year, with some observations on inflammatory rheumatism.

In this communication, I cannot, like some of your correspondents, disclose any thing of equal importance to that which results to the parturient mother from venesection; to the salutary effects of an alterative course, which, from its Herculean might, can arrest the ravages of the lungs; to the speedy and effectual relief from alkalization in that tormenting disease the bilious colic; or to the incontrovertible proofs of the non-contagion and domestic origin of the yellow fever; but I wish to represent the peculiarities attending this case; to show the frailty of human nature; and to induce others, when finding cases varying materially from systematical authority, not to sink under the magnitude of their weight; but with steady and resolute perseverance while life lasts, to keep their minds bent on relief; which in many instances can be gained beyond the most sanguine expectations of the physician, so as to arrest a fellow mortal from an impending fate.

May 22d, 1806, George Macy, aged twenty-six, became a patient of mine, with a *rheumatic white swelling* of the left knee; an *exostosis* of the left tibia, about two inches above the inner ancle; with extensive ulcers, situated on the anterior and middle part of each leg.

Mr. M. informed me that the complaint of his knee took its rise from a violent sprain, on a passage from London to New-York, in July, 1804. His knee continued swollen and painful for several months subsequent to the injury; after this, it was at times more comfortable; but every exciting cause roused to action a strong predisposition to rheumatic affections, and his knee was the part which generally suf-

ferred. In December, 1805, after a severe attack of intermitting fever, his knee became more sensibly affected, and he gained only temporary alleviation from external applications. He visited the Balltown springs in March, 1806, but derived no benefit from the waters; and returned to his father's, in this place, the May following, and became my patient as above.

The knee was now nearly twice its natural size, owing principally to a morbid thickening of the tendinous and ligamentous expansion, with a puffy elastic state of the *bursæ mucosæ* and surrounding teguments. The rest of the limb was much emaciated, with considerable contractions of the flexor tendons, and immobility of the diseased joint. The ulcers on the legs were to be considered as a secondary complaint, receiving their primary cause from the rheumatic diathesis. They discharged an albuminous matter, which operated as a drain for the morbid accumulation, and was probably one great cause why abscesses did not form around the joint.

My external applications were a succession of blisters on each side of the patella, upon the more swollen part, irritating the diseased surface as far as was prudent; and dressing the ulcers at the same time with a mercurial cerate (of red precipitate), washing them every dressing, and moistening compresses with a strong ley of fixed alkaline salts, intentionally increasing their discharge, for the purpose of diverting from the diseased joint as much as possible.

For his internal treatment I directed an antiphlogistic course, occasional cathartics of calomel, with such auxiliary remedies as the peculiarities of his constitution seemed to require. Under this treatment, which was pursued to June 20th, four weeks, he was apparently recovering in every respect; when a trifling exposure to the changes of the atmosphere produced a sudden translation to different parts of the system, and excited again to action every latent spark of his continual complaint—*inflammatory rheumatism*, with astonishing severity.

Every faculty was now exerted to eradicate, if possible, this rheumatic affection, which pervaded the whole system; for which purpose I had immediate recourse to venesection, which was repeated once. I directed fomentations to allay the violent irritation of the inflamed parts, and gave moderate portions of Dover's powder; which, from severity of pain, continued to be indispensably necessary, especially at

bed-time, occasionally adding small doses of calomel, and encouraging evacuations by the assistance of clysters. I gave a strong decoction of Seneka snake-root, and applied blisters in succession. The Seneka decoction, however, after repeated trials, from its nauseating effects, I was reluctantly compelled to relinquish; although from considerable experience, believing it to be, on account of its deobstruent effects, one of the most efficient remedies in common use. I now added the tincture of digitalis, which had a salutary effect, sensibly regulating the arterial action; and applied camphorated oil to the tumefied and inflamed parts.

July 1st. The inflammatory complaint progressing with extreme pertinacity, the nervous system became sensibly agitated—gave the camphor bolus. No material change taking place for the better, on the 5th Dr. Talman was called in consultation, who recommended a powder of camphor and nitre equal parts, as the stomach would bear, with or without a few grains of Dover's powder, to be governed by existing symptoms. But the violence of his disease, and his inability to receive medicine, seemed to thwart every exertion to give relief, and palliatives only were admissible. He seemed to be rapidly sinking, and but small hopes were entertained of his exhausted powers withstanding any longer this extreme torture; an imperfect crisis, however, was unexpectedly formed, followed by a watchful delirium, and an artful disposition to procure some instrument of death. Being unable to turn himself in bed, there was no suspicion of danger.

July 7th. The night following this extraordinary change, he procured a full sized tea-spoon with some fruit jelly, and impracticable as it may appear, forced it down his throat, while his attendant was gone, by his request, to the opposite side of the room for water. His struggles were violent, and he apparently suffocating, when, by the force of his fingers against the handle of the spoon, he crowded it so far as to suffer it to pass into the stomach before his friends could be gained to give his attendant assistance.

In this deplorable situation I was immediately requested to visit him. He was greatly agitated—talked much—believed he had gained his point, and declared that no attempt of ours could rescue him; which, at the time, I considered too true. The morning following he had some irregular sleep, continued through the 8th under a slight delirium, and complained of no uneasiness of the stomach. 9th. Continued

the same until evening, when a spasmodic affection of the stomach alternated every fifteen minutes with a stupor; throwing himself, as often as the spasm returned, with great violence from one side to the other, for about two hours (while the spoon probably passed the pylorus), when he suddenly fell asleep, and rested well through the night, extending the diseased leg, the flexor tendons of which had been greatly contracted, especially through the last complaint. He now became rational, his fever formed a perfect crisis; he recounted the past transaction with extreme sensibility, and expressed great anxiety for relief.

I waited the efforts of nature, assisting her with oily and mucilaginous substances, which served to remove the constipated state of the bowels, and to guard against any corroding effect of the metal. His ulcers soon healed, and he continued to gain in health and strength until the 25th, when a cutting sensation, confirmed by pressure of the hand, when in a stooping position, led to a discovery of the situation of the spoon in one of the last circumvolutions of the *intestinum ilium*, near the line dividing the right iliac and hypogastric regions. It remained in this fixed position, with increased heat and irritation in the adjacent parts, till August 7th.

Fearing that any further delay might endanger success, and he being resolutely determined to suffer every thing for relief, accompanied by the consulting physician, I had recourse to an operation as the dernier resort. I made an incision of about three inches, parallel with the epigastric artery, extending upwards to near a transverse line with the top of the *os ilium*—penetrating the inner edges of the obliquus externus descendens, internus ascendens, and transversalis abdominis—opened the peritonæum with a lancet, protruded the lower turn of the intestines containing the handle of the spoon, with my fore finger; pierced the intestine with the lancet over the end of the handle, and extracted it in the same direction with the forceps. I then laid the divided edges of the intestine directly opposite, and secured them with the glover's stitch—dressing the external wound with slips of adhesive plaster and lint.

After this I made use of simple dressings to the wound; applied a liniment composed of camphorated oil, volatile spirits of ammonia, and laudanum, equal parts, to the diseased joint and limb, which became more painful and contracted while labouring under the irritation of the spoon.

Under this treatment, his wound healed by the first intention; his knee became almost free from pain, and with the use of mild preparations of bark, he was soon able to move on his crutches, and ride abroad.

In September I applied a large stimulating plaster to the knee, and he soon after left this place for Nantucket, to gain the benefit of a sea-breeze; since which I learn he continues to recover, though much doubt remains in my mind as to the security of the limb.

Concerning the EFFECTS of HEAT, MOISTURE, CONFINED AIR, and sudden Transitions of TEMPERATURE on the HUMAN SYSTEM. By JACOB VREDENBURGH BROWER, M. D.

HEA**T** is a fluid communicated to us from that luminary which is called the sun. A subduction of heat to any considerable degree produces cold, and an entire absence of that fluid would produce absolute cold, which is incompatible both with vegetable and animal life. Sensations of warmth and of cold are respectively excited in the human body, by the presence of less or greater degrees of sensible heat. But the excitement of those distinct sensations will be different also, according to the different degrees of temperature of our own systems. A bucket of water may be made to feel both cold and warm alternately to your hand; for instance, if your hand be previously plunged into snow, and then into the bucket, it will appear warm; but if you heat your hand by the fire, and then plunge it into the water, that water which but a few moments before felt warm, will now feel cold. It is precisely so with respect to ourselves, and the medium which surrounds our bodies. The air or atmosphere of a place will excite either cold or warm sensations, according to the previous state of the body in regard to temperature. That fact, if thoroughly impressed on the mind, will tend to elucidate a source of diseases which hitherto has been involved in some degree of obscurity.

The human frame is so formed, that it has the power of generating heat within itself, and if a person by any mean has that fluid generated too fast, and a preternatural quantity becomes accumulated, he is said to be overheated. Such a state of the body is produced in a variety of ways; by fatigue, by a liberal use of animal diet and ardent spirits, and

by the immediate operation of fire. The system thus preternaturally excited will gradually decline into its former uniform course of nature, provided no injury be done to the texture of the parts excited, and provided also its excitement be not too suddenly acted upon by agents which have a tendency to produce other and still more dangerous effects. The capacity of bearing with impunity those sudden changes, from excitement to non-excitement, very much depends upon habit, which is one of the causes why foreigners, who come to this country, and who have not been habituated to a warm climate, are more liable than the natives to sicken with malignant fevers. On the preceding principles it appears plain, that malignant fevers will decline on the appearance of frost, although they may not totally disappear, in as much as an epidemic must have causes of general and extensive operation, such as heat, moisture, and sudden changes in the atmosphere to produce it; while scattered cases, either in the decline, or in the commencement of that disease, may owe their origin, principally to personal irregularities. For similar reasons, when there is the greatest difference between the temperature of days and of nights, during the months of September and October, the mortality of malignant fever is at its height. In July and August the thermometer indicates more heat, but the temperature of the air is much more regular and uniform.

Moisture comes next under consideration. Moisture is either local or general; local, when it abounds in any particular spot, and general, when watery exhalations are dispersed through the atmosphere. If the surrounding air be not of a due temperature, moisture will check perspiration, and deduct heat from the body very rapidly during the evaporating process. On that account, evaporation from the surface of the body will produce sensations of cold, particularly in the shade, or when the sun has descended below the sensible horizon. A circumstance now occurs worthy of notice; a breeze or current of air very much promotes that exhaling process whereby heat is diminished, and the functions of the skin become obstructed in their free and healthy exercise. The opinion, that the operations of moisture on the human frame are succeeded by pernicious consequences, is substantiated by the following facts which occur during sickly seasons.

1. Malignant fever will either begin to rage, or become more general and more virulent, after the fall of copious

rains, when those rains are followed by a close, confined, and sultry atmosphere.

2. Pestilence appears and prevails with peculiar virulence in those parts of populous cities which are contiguous to rivers.

3. It will predominate in streets which have a low situation, and in all places where moist exhalations abound. In general, during the course of my reading and observations, I have found it to be an universal rule, that in all places, villages, towns or cities, in hot climates, where there is a moist atmosphere, where the air is apt to be close and confined, and where there is a considerable difference between the heat of days and nights, and sudden transitions of temperature occur, there febrile diseases do prevail, and a malignant species, commonly called yellow fever, will occasionally predominate.

By a confined air is here meant any portion of the atmosphere which has little or no circulation. Accordingly, the air out of doors is, at all times, less stagnant than that contained in an apartment. There are various external objects which obstruct the free circulation of that elastic fluid. In populous cities, the buildings serve as so many barriers, which impede the flow of winds from one part to another, and it always requires a smart breeze to be perceptibly felt on the opposite side whence it comes. On that account, villages and cities will, in proportion as they increase in population and buildings, and become more numerous and compact, diminish the force of ventilation, which diminution of ventilation I conceive to be one reason why malignant fevers have prevailed more and more in New-York ever since its first settlement.

The atmosphere on the ocean is seldom or never stagnant, because there are no adjacent objects to impede its progress, however small that may be, from one part of the globe to another. On land, however, hills and mountains may stop the rapid career of salubrious winds, which would have a free scope over the surface of the sea. But in ships and in prisons the air may become very close, oppressive and insalubrious, if great pains be not taken to keep up a free ventilation within the walls of the latter, and beneath the decks of the former. The following facts will prove that a confined, oppressive air is incompatible with the preservation of health, and has a direct tendency to increase the grade and malignity of fevers.

1. Pestilential fevers will prevail most in streets which are situated low, and where the air has the least chance to circulate: while those that are wide, elevated and airy remain, excepting some scattered cases, free from those complaints.

2. A close atmosphere after a fall of rain has been observed either to produce the commencement, or to augment very much the virulence of an epidemic.

3. Storms and invigorating breezes have suspended the career of that disease.

4. During those seasons in which the city atmosphere has been duly circulated in consequence of frequent and high winds, the epidemic sickness has not raged. That was the case last summer, when the air was generally dry even after a fall of rain; and refreshing breezes, in a short time, carried off all superabundant moisture from the surface of our streets.

5. Malignant fevers have originated among convicts confined in prisons, owing to their want of an unobstructed, pure, invigorating air; while the inhabitants of the neighbourhood have remained free from those diseases.

6. Troops and passengers will sicken with the same complaints on entering into a hot climate, if they be too much confined and crowded together. In such instances they are under the influence of a close, confined, and oppressive air, owing entirely to their peculiar situation.

The effects of sudden transitions of temperature come next to be investigated.

A sudden transition of temperature in the human body may be produced by entering quickly from a hot into a cold medium. But that is not precisely the idea which I wish to convey. The human frame must not be considered as a living thermometer, but as a complicated machine, regulated by laws peculiar to itself, and which no artist can imitate. A fluid will appear to us, on entering it, either warm or cold, according to the previous temperature of our own bodies. That fact has been already demonstrated. On this account mankind are as subject to sudden transitions of temperature in tropical as they are in cold or temperate climates. During hot weather a trivial change, when the thermometer falls but a few degrees, will produce disagreeable, chilly sensations, particularly if the air be agitated by winds and impregnated with moist exhalations. And even if there be no sensible variation in the atmosphere, it

may dangerously affect a person who, by any cause whatever, when under the restraint of confinement, has become over-heated, and the perspirable fluids have begun to flow. That circumstance will account for many insulated cases of fever. But it requires a general cause to produce a general effect: and I have observed that malignant fevers spread among the inhabitants of New-York in those seasons only when winds blow unfrequently or very lightly from the north and west, and when heat, moisture, and confinement in the city air combine together in their operations. Heat and moisture, or heat and moisture combined with a close atmosphere, when uninterrupted, carry with them a powerful preventive against formal disease, which is perspiration: but when those agents, after producing debility and relaxation in the system, are followed by sudden transitions of temperature, serious consequences are sure to ensue.

Agreeable to the doctrines which have now been advanced, we will find, that malignant fevers rage with the greatest violence when the air is loaded with moisture, which increases both the oppressive heat of the day and the coldness of the night, and creates a greater variety in the atmosphere; and that they become epidemic in those seasons only, and in those months, when sudden changes of temperature, preceded by the causes before enumerated, are most frequent. Heat, moisture, and confinement of the air adapt the body to fall into derangement from very slight impressions of cold, and however mysterious, however paradoxical it may appear, sudden transitions of temperature are the exciting causes of all febrile diseases in a hot climate, to which the climate alone predisposes.

 R E V I E W.

ART. I. *An Account of a Voyage up the Mississippi River, from St. Louis to its Source; made under the Orders of the War Department, by Lieutenant Pike, of the United States Army, in the Years 1805 and 1806. Compiled from Mr. Pike's Journal: With a Map of the River, from its Junction with the Missouri to its Source.* 8vo. pp. 68. Washington.

BY the definitive treaty between the United States and Great-Britain, in 1783, a part of the boundary of the country ceded to the United States by that power, was a line drawn due west from the north-westernmost part of the Lake of the Woods to the River Mississippi. Subsequent discoveries have proved, that the true geography of that region was unknown to the ministers who negotiated that treaty. The sources of the Mississippi lie to the southward of the Lake of the Woods; and, consequently, a west course from that body of water would never touch them, or any part of the river to which they give rise; the treaty therefore involves an impossibility. To remedy the inconvenience that may arise from this undefined state of the limits between the two nations, it has been proposed, on the part of Great-Britain, to settle the same, by declaring, that a line drawn from the Lake of the Woods to the Mississippi head, should be the boundary, let the direction be what it might. To this our government has not as yet given its consent.

In the mean time, the United States, by the treaty of 1803, purchased Louisiana from France. This province is acquired with the same extent that it had when Spain possessed it, and with which it was formerly held by France; and such, in short, as it ought to be after the treaties subsequently entered into between Spain and other states. The extent of Louisiana northward, therefore, is limited only by the British Canadian dominions in that quarter.

Thus, in order to draw the territorial lines in their true places, and to understand rightly the extent of the country ceded by Great-Britain in 1783, and by France in 1803, it became important to have a survey made of the Upper Mississippi and the adjacent country; and, until the geography

was well ascertained, it was scarcely possible to avoid blunders in negociation.

There was a further occurrence which rendered a survey of this river highly desirable. By the treaty with the Sac and Renard nations of Indians, in 1805, the United States bought of them a tract of land, lying on both sides of the Mississippi, reaching north to the rivers Jeffreon and Ouisconsin. The boundaries of this purchase, amounting to fifty-two millions of acres, were given in our *Hex. ii. vol. ii. p. 439.* It was necessary to know the situation and value of the country thus acquired. A due regard to our western commerce, and to a peaceful system of conduct with the natives, demanded a further and better acquaintance with the Mississippi, and the land on both its sides.

Accordingly, the President of the United States authorized an expedition to be made by a detachment of the military force, consisting of Lieutenant Pike, one serjeant, two corporals, and seventeen privates. They started from St. Louis, the seat of government, in the territory of Louisiana, on the 9th of August, 1805. Two hundred and thirty-two miles above the mouth of the Missouri, the Riviere des Moines enters the Mississippi from the north-west; and immediately after their confluence the rapids commence. These rapids are formed by successive ledges or shoals, which cross its bed, and extend eleven miles up the river. Their termination is in lat. $40^{\circ} 32'$.

The Ouisconsin enters the Mississippi, from the east, in lat. $43^{\circ} 44'$. On the 16th of September they reached lake Pepin, in lat. 44° . On the 26th they arrived at the Falls of St. Anthony. They ascended to the Beaver Islands on the 10th of October, and soon after the grand rapids above them, that are difficult and dangerous to pass. On the 29th of December Mr. Pike reached the Isle of Corbeau, where the river of that name enters the Mississippi in lat. $45^{\circ} 49'$. On the 20th of January, 1806, the exploring party left the British North-West Company's station on the Lake de Sables, and reached the portage between the Mississippi and the Leech-lake river. Mr. Pike then visited Leech-lake, and Red-Cedar lake, the upper sources of the Mississippi. Near this are the Falls of Packagama, the greatest, save those of St. Anthony, between the source and extremity of the Mississippi. The latter lake is only two leagues from some of the waters which run into Hudson's Bay. The latitude was found, by Mr. Pike, to be $47^{\circ} 42' 40''$ N.

differing not very much from Mr. Thomson, who, in 1798, calculated the latitude of the North-West Company's house, which he considered to be at the very source of the river, to be in lat. $47^{\circ} 30'$. The long. of this station was $95^{\circ} 8'$ west from Greenwich. On walking three miles back from the lake, Mr. Pike found two thirds of the country, at least, under water. On the 28th of February Mr. Pike and his party left the Red-Cedar lake, on their return to St. Louis. They descended to the Falls of St. Anthony on the 10th of April, and on the 18th to the prairie des Chiens, near the mouth of the Ouisconsin. On the 30th April they returned to St. Louis, after an absence of eight months and twenty-two days.

The tribes of natives with whom they had intercourse during their journey were the Sioux, Sacs, Jowas, Foxes, Sauteurs, Chipeways, Folsavaines, Shawanoes, Winebagoes, Paunches, Puants, and Yanktons.

After this recital of the object and contents of the narrative, we make an extract of Mr. Pike's proceedings, when he was encamped a little below the mouth of the river Jowa. It will be both instructive and entertaining to our readers. (p. 10.)

"Mr. Pike then partook of the dinner which was provided for him, consisting of wild rye and venison, and sent four large bowls of it to the men who accompanied him. After dinner he went to see one of their dances. It was a curious performance. The men and women danced indiscriminately. They were all dressed in their gayest manner; each of them holding a small skin of some kind in their hands. They frequently ran up to, pointed their skin, and puffed with their breath, or blew at each other. The person thus blown on, whether man or woman, would instantly fall, and appear almost lifeless, or in great agony,—would recover slowly, rise, and again join in the dance. This is called their great medicine; or, as Mr. Pike construes the word, the dance of religion. The bystanders actually believe that something is puffed or blown into each other's body, which produces the falling and other effects which take place. All the Indians are not of the initiated. They must first make presents of forty or fifty dollars value to the society, and give a feast, when they are admitted with great ceremony. Mr. Frazer said he was once in a lodge with some young men, when one of these dancers entered: they immediately threw their blankets over him,

and forced him out. On his laughing at them, the young Indians called him a fool, and said he did not know what the dancer could blow into his body !*

" On returning to the boat, Mr. Pike sent for the chief, and presented him with two carrots of tobacco, four knives, half a pound of vermillion, and a quart of salt. Mr. Frazer having asked permission to present them some rum, it was agreed to, and a keg of eight gallons was made up between them. He informed the chief, that he dared not give it without the permission of Mr. Pike. The chief then thanked Mr. Pike for his presents, and said, " they must come free, as he did not ask for them : " to which the latter replied, that

* There is an obvious connection between the effects of this practice of the Indians, and some popular performances among the whites. We not only allude to the *power of emitting or striking down*, but to that of exciting convulsions, as contained in a narrative, from a gentleman at Abingdon, in Virginia, dated 14th October, 1804.

" The camp meetings in the western States have been productive of some phenomena, which have not been satisfactorily explained, and some of which are becoming very interesting.

" Persons who have been greatly affected at these meetings have been exercised in various ways. They laugh, they sing, they dance; and, as it would appear, all this is involuntarily done, being what the preachers call " religious exercises ; " but it is doubtful whether they are not the offspring of free will.

" There is one species of these " religious exercises " which is certainly involuntary, and that has spread from the camp and other religious meetings in an alarming manner. These are called " the jerks. " Some of those affected with this disorder will rise up, and with their eyes fixed and starting, make their feet roll upon the floor.

" But generally, the person who has this disorder, is vexed with a perpetual convulsive jerking in all his limbs. I have been told some of them will vault, and appear as if they would dash themselves to pieces, if not prevented. I have seen but one man affected with this disorder—there were not five seconds of time during which some of his limbs, his back, or his spine, were not drawn with a sudden jerk, in one direction or another.

" Yesterday there was in this town a muster of some militia companies. Three or four of these jerkers were in town, and no sooner did the drums begin to beat, than they found themselves so violently jerked, that they were forced to get out of town with all practicable speed.

" Several persons have taken this disorder who have no religion at all. Sucking children are not exempt from it, as I have been informed.

" A wild young man of this place, either from seeing the jerkers or shaking hands with them, took the disorder yesterday with great violence. A young man of the country who had this disorder on him, came into town to see his sister, who was free from it; she took the disorder immediately.

" It therefore seems the jerks are a nervous disease, produced by horror very strongly excited.

" I think this subject not unworthy of the public consideration. I submit its cause to philosophers; its remedy to physicians."

“to those who did not ask for any thing, he gave freely ; but to those who asked for much, he gave only a little, or none ”

“ During the time which Mr. Pike was at the Indian camp, he had soldiers placed to keep the crowd from his boats ; a duty they discharged with vigilance, driving back the women, children and men whenever they approached. When leaving these Indians, their warriors said, that as Mr. Pike had shaken hands with their chief, they must with his soldiers, a request he willingly complied with.

“ The party embarked about three o'clock, and ascended the river about three miles that evening, when they were overtaken by Mr. Frazer, who had tarried a little longer at the village with his perogues.

“ This part of the river is about two miles wide, and full of islands ; it shows hills, or prairie knobs on both sides. Opposite to Root river they passed the prairie la Crosse, (so called from a game at ball played frequently upon it by the Sioux Indians.) This is a handsome prairie, and has a small square hill upon it, similar to those mentioned by Carver. Its rear is bounded by hills, in the same manner as the prairie de Chiens. On this prairie there are holes dug by the Sioux when in expectation of an attack, in which they first put their women and children, and afterwards crawl themselves. These holes are generally round, and about ten feet in diameter ; but some are half moons, and quite a breast-work. The latter are the chief's work, and the principal redoubts. The manner of constructing them is this : the moment they apprehend, or discover an enemy, they commence digging with their knives, tomahawks, and a wooden ladle, and in an incredible short space of time, will make a hole sufficiently deep to secure themselves and family from the balls or arrows of the enemy. The Indians have no idea of taking these subterraneous redoubts by storm, as many men might be lost in the attack, which, even if successful, would be considered an imprudent act.

On the 13th of September the party passed the mouth of Black river, entering the Mississippi from the east. It is of considerable size, and Indian traders have wintered 120 miles up it. A little distance above, and where the River of the Mountain enters, there is a hill in the Mississippi, which the French term “ the mountain which soaks in the river.” Here they met the remainder of the war party of the Sacs and Renards returning from their expedition against the

Sauteurs. The interpreters inquired what number of scalps they had taken: their reply was, none. Passing the Mountain in the River, the party stopped on the west side, at the prairie L'Aile, when Mr. Pike, Mr. Frazer, and Mr. Sparks went on shore to hunt. Crossing a dry flat prairie, they ascended the hills, from which the prospect was very beautiful. On the right were the mountains passed in the morning, and the prairie in the rear, also the mountains of the prairie la Crosse, appearing like distant clouds. On the left, and under their feet was the valley through which the Mississippi flows between two barren hills, as far as the eye can distinguish. The river is divided into numerous channels by beautiful islands. After passing a very thick bottom, fording and swimming three branches of the river, and crossing several morasses, they reached the boats. Signs of elk were frequent, but they were not fortunate enough to meet with any, although those in the boats had seen three. The next day they passed the river Embaras, and L'Eau Clair, which enter on the west side, and in the evening stopped opposite to Buffaloe river, running in from the northeast. The first of these rivers is navigable 135 miles, and the last, at the head of which the Chipeways reside, is navigable for perogues for 45 or 50 leagues.

"At noon, on the 16th of September, they reached the grand encampment below Lake Pepin; and in the evening passed the Sautiaux river, which flows in from the east at the entrance of the lake. They continued to sail in the evening, with the intention of crossing the lake. The interpreter (Rosseau) said he had passed this lake twenty times, but never in the day time; alleging as a reason, that the wind frequently rose and detained them in the day time on the lake. It is more probable, however, that the true reason why the traders generally sail through it in the night is, their fear of the Sauteurs, as they have made several war strokes at the mouth of this river, without distinguishing between the Sioux and their traders.

"The exploring party entered the lake with music playing; but the sky soon clouded, and, from the agitation of the water, they had to seek a harbour for the night on the east side. The next morning they were assailed by a tremendous storm: the perpendicular lightning seemed to roll in balls of fire down the steep hills which bordered the lake, and it required great exertions to weather the point de Sable. Here they found a Mr. Cameron, with one wooden

and three bark canoes, who had sailed from the prairie on the 5th. His canoes were unladen, and turned up for the habitations of the men. His party exhibited all the indifference of Indian traders. Here they were shown a point of rocks from which a Sioux woman precipitated herself, and was dashed to pieces on the stones below. Her friends had refused her the husband of her choice, and intended to marry her to one whom she despised. She sung her death song, ascended the hill, and, before her friends came up with her, took the lover's leap, and ended her distress and life together. At the mouth of Canoe river they met with a band of Sioux, under the command of the *Redwing*, the second chief of the nation. He made a speech, and presented Mr. Pike with a pipe, pouch, and buffaloe skin. They encamped opposite to the Indians, on an island in the river, the chief having promised to accompany them to the river St. Peter. He appeared to be a sensible man; saluted the party, and received a small present.

"They reached the St. Croix river at noon on the 19th, and in the evening encamped on a prairie on the east side of the river, where stands a large painted stone. On the morning of the 21st, they arrived at the Sioux village, situated at the head of an island, and just below a ledge of rocks. It was unpeopled, the Indians being absent. Two miles higher, they saw three bears cross the river. Here was another camp of Sioux, consisting of four lodges; they saw but one man, named the Black Soldier. The garrulity of the women was astonishing, since at all the other camps they had been silent; here they flocked round the strangers, all talking together, which could only be accounted for by the absence of the men.

"Three miles below the mouth of St. Peter's river they passed the encampment of Mr. Ferrebault, who had broken his perogee. The Mississippi was so narrow in this day's course, that they crossed it in a batteau with forty strokes of the oars. The water of the Mississippi above lake Pepin appears red, and where deep, nearly as black as ink. The water flowing in from the St. Peter's and St. Croix rivers, gives it a blue appearance for a considerable distance below their confluence.

"Observing a white flag on the shore, they landed, and found it to be of white silk: it was suspended over a scaffold, on which lay four dead bodies: two were enclosed in boards, and two in bark. They were wrapped up in blan-

kets, which appeared yet new. They were the bodies of Sioux women, a child of one of them, and some other relative. Some of them had died on the St. Peter's, others on the St. Croix, but were brought and deposited on this scaffold together. It is the mode in which the Sioux bury those of their people who die a natural death; but those who are killed are suffered to lie unburied. As a corroboration of this information Mr. Pike relates, that on the hills below the St. Croix he found the bones of a man which he supposed had been killed on the spot."

We cannot do better than to quote the words of the writer on the proceedings of the party, and the description of the country near the head waters of the Mississippi.

"On the evening of the 2d of January, 1806, the centinel gave information that some Indians were coming at full speed upon the trail or track of the party. The men were ordered to stand by their arms carelessly. The Indians were immediately in the camp, and saluted the flag by a discharge of three pieces, when four Chipeways, one Englishman, and a Frenchman of the North-West Company presented themselves. They stated, that some women having discovered the trail, and not knowing but it might be their enemies, had given the alarm. They had heard of the United States party, and revered the flag. Mr. Grant (the Englishman) had only arrived the day before from lake de Sable, from which he had marched in a day and a half. The Indians were presented with half a deer, for which they were very thankful, having been kept in their camp some days by the discovery of the fires which the exploring party made where they stopped.

"The next morning the party continued their journey, except Mr. Pike and one of his men, who accompanied Mr. Grant to his establishment on the Red Cedar lake. The British flag was flying at the trading house. Mr. Grant said it belonged to the Indians. After explaining to a Chipeway warrior, called 'Curleyhead,' the objects of the voyage, and receiving his answer, which was, that he should remain quiet till their return, they eat breakfast and parted. Mr. Pike and his companion overtook the rest of the party at the close of the day.

"In the night of the 4th Mr. Pike's tent was discovered by the centinel to be on fire; the party were alarmed in time to prevent any other damage than the loss of the tent, which was a double one, and some articles of cloathing which

had been hung to dry. They fortunately saved three small kegs of powder from the flames, which were in the tent.

"On the 6th the snow was three feet deep, and continued falling all the day. In this day's march they met two Frenchmen of the North-West Company, each of whom carried about 200 pounds weight on his back. They had rackets on. Mr. Grant, and the Frenchman with him, were gone on before. The next day was so intensely cold that several of the men had their extremities frozen. It was found necessary to send a person forward to make fires every three miles.

"Supposing themselves to be at no great distance from Sandy lake, Mr. Pike, with a corporal, left the party, and went to view it. They walked briskly till towards evening, when they met a young Indian, one of those who had visited their camp near Red Cedar lake. They endeavoured to explain to him their wish of reaching lake de Sable that evening. He turned back with them until they came to a trail which led across the woods, which he signified was a near course. They went with him, and soon found themselves in a Chipeway encampment, to which the friendly savage had led them, with the expectation of their remaining at it all night, knowing it to be too late to reach the lake at a reasonable hour. On their refusing to stay he put them in the right road. At dusk they arrived at the place where the track left the Mississippi, when they traversed two leagues of the wilderness without much difficulty, and at last struck the shore of the lake de Sable, over a branch of which their course lay. The snow having covered the trail of the Frenchmen who had passed before with rackets, they were fearful of losing themselves on the lake. The reason for such apprehension can be best felt by those who have been exposed on a naked and dreary plain, in a high latitude, on a December night, when the mercury in Fahrenheit's thermometer stood twenty-seven degrees below 0. Cheered by a belief that they saw the opposite shore, they proceeded in a direct line, and after some time had the satisfaction of discovering lights in the houses. On their arrival they found, to their surprise, a large stockade. The gate being opened, they entered, and proceeded to the quarters of Mr. Grant, where they were treated with the greatest hospitality.

"This establishment was made by the North-West Company twelve years before, when it was under the direction

of Mr. Charles Bousky. It has now acquired such a degree of regularity as to allow the superintendant to live with tolerable comfort. They have horses, which were obtained from the Indians on Red river.

"They raise plenty of potatoes, and the lake furnishes them with pike, suckers, pickerel, and white fish in any number. Beaver, deer, and moose are in abundance; but their principal dependance is on the wild oats, which they purchase from the Indians at the rate of one dollar and a half the bushel. Flour, pork, and salt may be considered as interdicted articles to persons not principals in the establishment. Flour sells at half a dollar, salt one dollar, pork eighty cents, sugar half a dollar, and tea four dollars and a half a pound! The sugar is obtained from the Indians, and made from maple juice.

"The remainder of the party did not arrive at the establishment of the North-West Company, on lake de Sable, until the evening of the 13th. One of the men had been much injured by the fall of a tree. This, with the badness of the ice on Lake river, (occasioned by the marshes which abound on it) and through which one of the sleds fell, had much retarded their progress. At the establishment they were furnished with a warm room, and well treated. Mr. Grant had gone to an Indian lodge to receive his credits.

"On the 14th Mr. Pike crossed the lake, and ascertained the latitude to be $46^{\circ} 9' 20''$ north. Mr. Grant returned on this day with a quantity of furs and eleven beaver carcasses.

"Mr. Pike and Mr. Grant, accompanied by two of the party, went to view the lake, and found it more extensive than he had imagined. On leaving the stockade they met an Indian, whose countenance expressed great astonishment when told that Mr. Pike was an American; for it is here confessed, that the savages express the greatest veneration for the American character, when it is connected with warlike achievements: they say, "the American is neither a Frenchman nor an Englishman, but a white Indian." At this place the men were employed in making sleds to conform to those used in this part of the country; which are, a single plank turned up like the head of a violin. The baggage is lashed on in bags or sacks.

"On the 19th two men of the North-West Company arrived from the Fond de Lac Supérieur, with letters; one

of which was from their establishment in Atabasca, and had been since May in coming.

"While at this post they ate beaver dressed in every respect as roasted pig. It had no unpleasant taste; on the contrary, was very excellent eating. The head of the moose, which they also ate here, when well boiled, was considered equal to the tail of the beaver, to which in taste and substance it is similar.

"On the 20th January the party and sleds left the North-West Company's station, and reached the portage between the Mississippi and Leech-Lake river. It began to snow in the evening, and continued all night and the morning of the next day. From the quantity of water on the ice, it was found impracticable to get all the baggage along; eight men were therefore sent back laden with those articles which were not absolutely necessary to the party. Mr. Grant, who had accompanied them thus far, not being so incumbered with articles as they were, left them on the morning of the second day. As they approached the neighbourhood of a lodge or house belonging to Mr. Grant, where he had promised to halt half a day, Mr. Pike, accompanied by an Indian in his party, and one of the men, left the main body to go to it; the soldier, not walking with the same speed, was left behind, while Mr. Pike and his companion reached the house about sun-set; they met two of Mr. Grant's men, who had left it in the morning, on their return to the lake de Sable. Here they passed an uncomfortable night, having nothing to eat, very little fire-wood, and no blankets. The Indian, however, slept sound, while Mr. Pike sat over the few coals their fire produced. The man they had left behind did not arrive that night. The Indian having expressed a wish to go after his son, left Mr. Pike to his reflections in solitude the next morning. About ten o'clock the soldier arrived; he had followed them until some time of the night, when, finding he could not overtake his company, he made a fire and halted; but having no ax, could scarcely keep himself from freezing. He met the Indian in the morning, who made signs for him to go on. After the whole party had arrived at this lodge, Mr. Pike determined to proceed on to the head of the river, accompanied by one of his young men, named Miller. He left the camp on the morning of the 29th, when it was snowing very fast. They passed an island, one rapid and a small lake, and arrived about one

o'clock at the falls of Pakagama, the greatest impediment to the navigation of the Mississippi, except the falls of Saint Anthony, between its source and the gulph of Mexico. They stopped for the night at three Indian lodges, which did not appear to have been left more than three days; and where they found a fine parcel of split wood. By cutting down three sappine trees, and weaving their branches into the windward side of the lodges, so as to protect them from the storm, they had a tolerable night's lodging. Not being able to find a trail, they had to pass through a dismal cypress swamp in the morning, before they reached the river. They struck it at a small lake, and perceived a track through it, which they knew to be Mr. Grant's by his mark, 'a cut off,' which had been agreed upon before they parted; following this, they got on very well till they arrived at a small lake where the trail was entirely obliterated. After some search on the opposite side, they discovered it, and passed through a dismal swamp, beyond which was another lake, where the track was again lost. They directed their course for a point about three miles distant, and where they found a Chipeway lodge of one man, his wife, five children and an old woman. They were received by these savages with great barbarity; the dogs were set on them, and when they reached the lodge, the Indians endeavoured to thrust their hands into their pockets. This was resented in such a manner as to let them know it would not be borne with through fear, and that the strangers were Chewockmen, or Americans. They were then treated more civilly. After arranging their camp, Mr. Pike went into the lodge, where he was presented with a plate of dried meat. He requested Miller to bring about two gills of whiskey, which made them all good friends. The old squaw gave him more meat, and offered some tobacco; the latter of which he declined, and in return, gave her an order on his corporal for a knife and half a carrot of tobacco. After Mr. Pike had gone to his own fire, the old man came out, and proposed to trade beaver skins for whiskey; meeting a refusal, he returned, and directly the old woman came out with a beaver skin; she being also refused, he returned to the charge with a quantity of dried meat, which on any other terms would have been acceptable; a peremptory refusal now put an end to all further application. Indeed, it appeared, that such was their desire of obtaining liquor, that a quart of whiskey would have purchased all the family was worth;

The next morning Mr. Pike took his clothes into the Indian lodge to dress, but was received very coolly; a present to the wife of a little salt, and a dram to the Indian unasked for, appeared to ameliorate their manners; and they gave directions of the route to be pursued.

"They passed the lake, or morass, and entered on the meadow through which the Mississippi winds its course of nearly fifteen miles; at the head of this meadow they discovered that they had missed the river, which they regained by making a turn of two miles. They passed the fork made by the lake Sangsue branch and that from lake Winepic. Taking a west course, they crossed a meadow, or prairie. The river here is only fifteen yards wide. They encamped about a mile above the meadow, where they saw an animal which, from the leaps it took, seemed to be a panther, but of twice the size of the panther on the lower Mississippi. It showed some disposition to approach Mr. Pike, which he wished to encourage by squatting down, and desiring Miller to do the same behind him, but without effect. The night was so cold, that the spirits they had in a keg congealed to the consistence of honey. Early in the morning they left the camp, and passed along a continued suite of meadows, until they reached the Sangsue lake, a little after mid-day. The sight of this lake was highly grateful to their feelings, it being the main source of the Mississippi; but the little lake Winepic is navigable to Red-Cedar lake, which is the extremity of the navigation, by a communication of five leagues. Across the lake it was twelve miles to the establishment of the North-West Company, which they arrived at about ten o'clock in the evening. The gates were locked, but, on knocking they were admitted, and received by Mr. Hugh McGillis with great politeness and hospitality, and had a supper of biscuit, butter, and cheese.

"After remaining a few days within doors, to recover from the fatigue of travelling, Mr. Pike, accompanied by Mr. McGillis, went to visit Mr. Anderson, the agent of Mr. Dickson, at the west end of the lake, in a situation favourable for trade. He went in a cabriolet, formed to carry one person. It is constructed of boards planed smooth, and turned up about two feet in front where they come to a point; the width behind is about two feet and a half, where there is fixed a box covered with dressed skins and painted. This box is open behind, but covered in front nearly two thirds of the length. When wrapped up in his buffaloe robe, the

traveller slides his feet into this box or boot horizontally, sitting with his body upright and his back supported by a cushion. The horse draws in shafts. Thus seated, and the head and extremities covered by a fur cap, and other warm cloathing, he bids defiance to wind and weather.

"On returning to the North-West establishment, they found that some of the Indians had already arrived from their hunting camps; and a Mons. Boussant, who had been sent from the establishment some time before on business of the company, but who not returning when expected, it was supposed the Indians had killed him. Mr. Grant had been sent in search of, and returned with him, to the great joy of the factory. On the 10th they hoisted the American flag, on the staff on which the English jack was then flying. Some Indians and riflemen, after a few shot, broke the iron pin to which it was fastened, and brought it to the ground.

"The 'Sweet,' Buck, Burnt, and other chiefs, came in on the day following. The first of them is a venerable old man. He says that, "when he was made a man, and began to hunt, the Sioux occupied this ground; that they evacuated it in the same year in which the French missionaries were killed at the river Pacagama."

"Mr. M'Gillis, with two of his men, and Mr. Pike, with a corporal of his corps, left Leech lake on the morning of the 12th of February, and arrived at the Company's house on Red-Cedar lake at sun-set, a distance of 30 miles. This lake is about ten miles long, and six miles wide. From the straits to where the Mississippi runs out of the lake, is called six miles. The bay at the entrance extends nearly east and west six miles. It is about two miles and a half from the north side to a big point. This may be called the upper source of the Mississippi, being fifteen miles above lake Winepic, and the extent of canoe navigation. It is only two leagues from some of the waters of Hudson's bay."

During this interesting tour, Mr. Pike was every where the messenger of peace; and he reconciled quarrels among the Indians in all directions. On his return he was conveyed a long distance on a sleigh drawn by dogs. And although he and his companions were exposed to great hazards, and encountered remarkable hardships, they all returned in good health.

ART. 2. *Histoire de la Fievre qui a regnè, sur la Flotille Françoisè, sortie du Port du Tarente, dans la mer Ionienne, pendant l'an X. allant au Cap-François, ile St. Domingue, &c. i. e. History of the Fever that prevailed on Board the French Fleet which sailed from the Port of Tarentum, in the Ionian Sea, during the Year 1802, on a Voyage to Cape-François, in the Island of St. Domingo; with Reflections on the principal Causes of the Unhealthiness of Port Mahon and Cape-François. By J. M. Beguerie, M. D. &c. &c. 8vo. pp. 104. Montpellier. 1806.*

WHEN popular distempers have arisen in any city or district of country, nothing is more natural than to make attempts to account for them, and particularly to explain their origin. Notwithstanding the discontents and miseries of life, a sentiment of attachment to one's native soil pervades a large proportion of the human race. The Aborigines of the continent west of Hudson's Bay, and of the island south of Magellan's Strait, however miserable their lot may seem to us, agree in this, that their respective regions are preferable to every other, and by far too delightful to be exchanged for any situation the globe affords. The like preference is manifested by the white inhabitants of the earth, who as strenuously contend for the excellences of the places where they were severally born. The natives of different islands, provinces and kingdoms, feel an equally strong attachment to their homes, and the people of Nantucket and St. Kilda are as contented and as proud as the inhabitants of their two national capitals, Washington and London.

This love of one's own country is denominated patriotism. It manifests itself in protecting the favoured region against external hostile attacks, and guarding it from all obloquy and reproach. It extols its fair fame and exalted character on all occasions. It is ever ready to repel slanders, refute calumnies, and mitigate ungrateful truths. A patriot of this sort is sometimes as elevated and refined as a knight of chivalry; and the former will stand forth in vindication of his incomparable country with the same ready valour which the latter displays in maintaining the matchless beauty of his mistress.

Hence arises the practice among men of repelling from their country whatever is of an unpleasant report concern-

ing it. Among other subjects of approbation, it must be praised for the salubrity of its climate, and its favourable-ness to health and long life. And this eulogy is generally carried to an extravagant length, contending that in an atmosphere so balmy and balsamic, no contagious or pestilential distempers ever arose; and if such doleful maladies ever appear, they must have been imported from abroad, the foul and pernicious offspring of some blasted region, some cursed spot where fewer favours are granted to the heathenish and outlandish inhabitants.

Thus we find, that the custom of ascribing the plagues of the earth to distant countries, with the exemption of our own, springs from the vanity of patriotism. It is cherished by the spirit of commerce, which leads the mind to believe, that a ship contains nothing but her cargo, and that every thing within her has been taken on board in bulk or in kind. As therefore a ship, cargo and crew proceed from a port, a fashion has been indulged among mankind of believing that any sickness occurring during the voyage, must have been taken in with the other parts of the cargo, and, in like manner, transported from one part of the world to another.

Later observation has demonstrated the fallacy of these conclusions. In spite of the vauntings of *amor patriæ*, we now know, that epidemic distempers occasionally prevail in the crowded resorts of men. The people of one country therefore err exceedingly in railing at those of another, for exporting pestilential diseases to them, since these malignant distempers are alike the native productions of both. It frequently happens, that neither of the places of supposed export or import ought to be blamed. For while the one and the other is entirely free from alarming fevers, a local disease may be engendered within the ship during her voyage. It deserves to be remarked among the curious facts relative to the human mind, that this source of disease on ship-board has been for ages overlooked. While the bitterest revilings have been indulged between two cities or countries, mutually innocent, the imbred mischief of the ship sailing between them has been wholly overlooked. But, at this present time we consider a ship as a floating house. We see her crowded with inhabitants. We behold her charged with provisions for their support; and we frequently observe a cargo perishing, and putrefying beneath the decks. This floating mansion is peculiarly prone to accumulate filth, and grow sickly. The seamen and passengers are liable, during

the voyage, to all the ordinary infirmities of man, and besides, to the extraordinary incidents of their crowded and unclean situation. The ship frequently ploughs the most heated tracts of ocean, and visits the sickliest of its shores. Under these circumstances, from *internal causes*, having no reference to the port whence she came, nor to that whither she goes, malignant fevers sometimes make their appearance. We hence conclude that a ship is, in such cases, a **MANUFACTORY OF PESTILENCE**; and if she sail from one place to another without having been aired, washed, and alkalized, she is also a **VEHICLE, CONVEYING THAT PESTILENCE** to every sea-port she visits.

Thus, by tracing the evil to the ship, we exonerate from blame all the ports between which she sails. We find the distemper to be of local origin on board; and we correct the pernicious, though ancient and popular delusion, of its contagious quality, and its derivation from foreign people. Thus we endeavour to propagate peace and good will among men, and to terminate the endless criminations and recriminations that have long pestered, and still continue to pester civilized society.

These reflections have been excited by the perusal of Mr. Beguerie's Memoir on the malignant fever which raged on board *the French fleet outward bound from the Mediterranean sea to the West-Indies*. And this distemper he considers to have been a yellow fever, or disease of the same species with that which prevailed at the same time (year 10), in the southern parts of Europe. As far as we understand the history of this expedition, we shall relate it. Immediately after the treaty of Amiens, it was determined that the French troops should be withdrawn from the Neapolitan dominions. On their removal, a demi-brigade was ordered to St. Domingo. They were embarked at Tarentum, (12th Floreal, 10th year) in small Neapolitan polacres. They were extremely crowded; for there being 150 in each vessel, there was scarcely any room to stir. Off the island of Piombino they were assailed by a terrible storm, which dismasted the frigate that escorted them, dispersed the fleet, and obliged the polacre in which the author was to run into Gaeta, near Naples; whence, in 24 hours they were ordered to depart for Leghorn. They were, at that time, short of provisions. On their arrival at Leghorn, they were put under the command of an armed corvette to be escorted to Cadiz, and join the Polish legion which was waiting for them there.

The supplies of provisions which they received at Leghorn were of a very bad quality. Three days after sailing, salted stinking fish were dealt round for rations. After consultation held on the passage, it was agreed to throw that which smelled horribly into the sea. Their provisions were again consumed before they reached their place of destination, and the fleet was forced to go into Carthage for a supply. Here they changed vessels, and embarked in other transport ships; were recruited with fresh provisions from the market, and supplied with an entire stock for the voyage, forwarded from Toulon by the government.

Mr. B. availed himself of his situation as Surgeon-major of the division to which he belonged, to observe the local origin and alarming progress of a pestilential fever, on board a fleet badly equipped and victualled, extremely crowded, and incommoded by rough weather. Added to all which was the occurrence of an unusually hot season, equalling the ardors of Senegal and Angola. Of this disease he has given a particular delineation (p. 10—20). And, although it was less malignant and destructive than the yellow fever of Spain, and the West-Indies, he considers it as differing only in degree (p. 68). He places it midway between ordinary bilious fevers and malignant yellow fevers (87).

He describes Port Mahon (p. 25) as a deep bay, in which there is neither ebb nor flow of tide. Into this all the filth of the city is discharged, as well as that of the vessels in port, and of the offal of animals killed on board. On examination, Mr. B. also found at the bottom of the port, a pond of rain-water, and a marsh adjoining it, which, in summer, furnish abundance of noxious exhalations. The burying-ground too is a great and increasing nuisance. These observations, made on the spot by Mr. B. deserve to be taken into consideration by all who read Cleghorne's much esteemed book on the diseases of Minorca; for this latter observer gives full reason to believe, that Port Mahon contains local sources of febrile diseases to a great and alarming degree.

At Cape-François, he enumerates a long and black list of local causes, engendering yellow fevers (p. 31—34); of these he gives a description.

This writer, though an European, is led to resist the doctrine of contagion which prevails among his countrymen. He reasons against it like a man who observed for himself, and draws his own conclusions in strong and independent

terms. And although educated a disciple of that dogma of the schools, he is ready to abandon it, being nearly convinced of its weakness and absurdity. He avows, that sporadic cases arise without contagion. He declares there are multitudes of instances during the reign of epidemics, where there can be no possible reason to be assigned for entertaining a suspicion of contagion (p. 100). And yet, with such enlargement of mind, he retains a remnant of the old prejudice, chiefly because Berthe and Palloni still contend for their contagiousness.

We have rarely seen a more striking example of an ingenuous and vigorous understanding, struggling to divest itself of the early errors of education and habit than in Mr. B. We hope he has entirely extricated himself before this time. And we recommend his book to the perusal, and his example to the imitation of all serious seekers after the truth.

ART. 3. *An Anniversary Oration on the Subject of Quarantines, delivered to the Philadelphia Medical Society on the 21st of January, 1807. By Charles Caldwell, M. D. 8vo. pp. 30. Philadelphia. Fry & Kammerer. 1807.*

DISCUSSIONS on commercial restraints, by means of quarantines upon ships, have repeatedly occupied our pages. The mistakes on which those boasted regulations were founded, the abuses to which they gave rise, the evils they produced to navigation, the mischiefs they entailed upon police, and the prejudices they have perpetuated in medicine, have been successively the subjects of our comments and remarks. A free examination of the present system of quarantines and lazarettoes was printed in our Hex. i. vol. v. p. 243—254, in a letter to the Health Officer of New-York. In the same volume, p. 344, and in vol. vi. p. 460, accounts were given of the proceedings in Congress relative to quarantines. The measures taken by the Executive of the United States to lessen their rigour in foreign parts were stated in our Hex. ii. vol. i. p. 215—218. And, again, in vol. iii. p. 224—233, where we gave a recital of the measures taken by the European governments to guard themselves against the yellow fever of the United States, we accompanied the narrative with our reflections and lamentations on the unhappy state of public opinion, both at home

and abroad, upon the subject. Lastly, in the same volume, p. 447—454, a speech on quarantines, delivered in the House of Representatives, was presented to our readers. Hence it appears, that ever since 1801, we have been engaged in combating the prevailing errors in this department of national economy.

They who have steadily honoured our quarterly numbers with their perusal, need not be informed, that we have been the strenuous and unceasing advocates of a reform. To those who have not accompanied us in our stated periodical labours, and who have not yet become acquainted with our opinions and doctrines, we recommend a perusal of the memoirs and tracts quoted in the preceding paragraph. There they will learn so much at large on the grounds of our complaints, and the remedies we propose, that we consider it superfluous to repeat them in this place. We rather intreat them to turn back to the volumes on their shelves, wherein these original essays may be perused at full length.

In the publication now before us, Dr. Caldwell steps boldly forward in defence of those ideas on quarantines which we have long inculcated. The form of an address to a society of professional men is well calculated to render them popular; and the printing of it in a cheap and portable size will be likely to favour an extensive circulation. As far as we can judge, it will materially aid the inquirer, in avoiding the current delusions concerning the transportation of contagion, and contagious distempers from one country to another.

It would give us pleasure to proceed further with our observations, but we conceive it will be more gratifying to our readers to examine a portion of the text, and judge for themselves. In this we indulge them by inserting his history of quarantines (p. 7.)

“The first lazaretto and system of quarantine of which we have any account, were established at Venice in the year 1448, during the ravages of a very destructive pestilence. Not long after this, similar institutions were erected at Marseilles, Genoa, Leghorn, Malta, Messina, Zante, Spezia, and various other European ports, where they have continued, without interruption, or any material alteration, to the present day. It must be acknowledged, therefore, that these establishments have the sanction of considerable antiquity to recommend them. And this antiquity has been adduced by some writers as an argument in favour of their

great utility, and of the soundness of the principles on which they are founded. Had they not, say these authors, been proved by experience to be effectual and unequivocal guardians of public health, they would, long since, have fallen into disrepute and been abolished. But this mode of reasoning, though somewhat plausible and imposing, is highly erroneous. Admit antiquity as an infallible test of excellence, and then every institution becomes more valuable, in proportion as it acquires a greater age. Let us see to what dangerous extremes this principle would lead us. The Jewish is much more ancient than the Christian religion. So is the religion of the Persians, the Chinese, the Hindoos, and other nations of the East. But does it follow from hence, that they are also more pure and enlightened as systems of pious instruction, or more sound and correct as codes of moral precept? As possessed of reason and understanding we cannot, and, as professors of christianity, we dare not answer this question in the affirmative. On the other hand, judgment, conscience, and faith, combine to extort from us a negative reply.

“In matters where physical science is concerned, the antiquity of establishments, unless they have been frequently altered and amended, is an argument against their excellence rather than in favour of it. The course of science is known to be progressive. As mankind advance in their knowledge of nature, they find it necessary to make frequent changes and innovations in long established opinions and systems, and sometimes to abandon them altogether. This is, perhaps, more particularly the case in things relating to the science of medicine. For I believe it to be true, that medical opinions have undergone more numerous and more rapid changes than those connected with any other branch of philosophy.

“If we advert to the circumstances of the *time* in which systems of quarantine were first established, we will derive no argument in favour of them from that quarter. On the other hand, we will be led to suspect, that they were founded on principles of superstition and prejudice, rather than on those of reason and science. The fifteenth century, which gave birth to these institutions, was a period of physical darkness throughout the world. This was peculiarly the case in Italy, and in the south of Europe in general, where the human mind was led most astray by the delusive wiles of priestcraft, and groaned under the heaviest load of papal tyranny.

Though at that time polite literature was cultivated with considerable success in some of the Italian states, particularly at Florence and in other parts of Tuscany, yet Europe does not appear to have been able to boast a single physician or philosopher of real eminence. The whole genius of the age was devoted to warfare, poetry, painting, sculpture, and ecclesiastical learning. As yet the study of nature by experiment and observation, the only way in which any progress can be made in physical science, was not only neglected, but wholly unknown. The genius of Bacon, the true father of modern philosophy, had not yet sent forth its illuminating beams. Although a few physicians of that period have transmitted their names and their writings to posterity, yet these writings exhibit little else than a strange discordant mixture of the errors, absurdities, and extravagances of the time. As these writers appear to have had no knowledge whatever of the real causes of disease, they have indulged themselves in the most unbounded flights of fancy and superstition, in search of imaginary causes. Hence they derived some diseases from astral and planetary influence, others from demoniacal influence, and others from the immediate agency of heaven. To this latter class belonged the *pestilence* itself, the very disease for the prevention of which systems of quarantine were about the same time erected.

“ At first view, there appears to be, in this particular instance, a striking inconsistency between the doctrines and the practical establishments of the age. But on a more careful examination of the subject, this seeming inconsistency vanishes. It must be recollected that in the fifteenth century, the fervid enthusiasm which had previously impelled the hosts of Europe to carry their arms into Asia in the holy wars, had not yet entirely subsided in the breasts of their descendants. The countries of the East continued still to be regarded with mingled emotions of reverence and abhorrence—reverence for the soil which had been rendered sacred by the footsteps and blood of the Messiah, and abhorrence of the idolatrous and impious rites by which that soil was daily polluted. The infidels by whom these abominations were committed, not only throughout the country where the gospel of life had been first promulgated, but even on the hill of Calvary itself, were considered as the proper and peculiar objects of divine indignation. On these heretics, therefore, it was believed that the Deity had, by his own immediate act, sent down the destroying *pestilence*, as

a punishment for their disbelief of the gospel, and their disregard for the precepts of his Son. Like the late pestilential diseases of the United States, the Asiatic pestilence was *then* erroneously regarded as a *new* disease. But, as it was deemed both new and of supernatural origin, it was considered as also possessed of certain extraordinary properties. Among these was *its power of being communicated from one country to another*. Although this disease had been, in reality, known from the earliest times, yet, previously to this period no such power had ever been attributed to it. The fleets and armies of the ancient Greeks and Romans had repeatedly visited Egypt and the other provinces of the East, and returned again to their native countries, without the least restraint or precaution. So had the troops of the various European nations, during the continuance of the holy wars. Yet, in these instances, no suspicion appears to have been entertained of the introduction of the Asiatic pestilence into any part of Europe. But we know that this disease raged several times among the crusaders whilst in Asia, as well as in many of the armies of ancient Rome.

“Such, then, appears to have been the origin of the doctrine of the importation of pestilence into Christendom. A malignant and fatal disease was believed to have been inflicted, as a punishment from heaven, on the infidels of the East. This disease was further believed to be communicated by contagion, through the channels of commerce, to the Christians of the West. And, for the prevention of such a calamity among the latter, systems of quarantine were devised and erected.

“But there was probably another cause which assisted in inducing the inhabitants of Europe to consider the pestilence as introduced among them from the shores of Asia. This cause also had an indirect relation to the holy wars. The crusaders, on their return from the East, though they were never charged with the introduction of pestilence, are known to have brought along with them the small-pox, as one of the rewards of their pious expeditions. This circumstance would be likely to induce their descendants, who suffered grievously from that loathsome and destructive complaint, to regard the land polluted by the infidels, as the proper nursery of many other formidable diseases. Having certainly derived one of their calamities from that region, it was not unnatural for them, in their prejudiced and very

limited view of things, to look to the same quarter for other evils of a similar nature. Even at the present day there are certain strange and irrational notions entertained on this subject. The countries of Asia are still considered by many as the birth-place of particular diseases which cannot originate in Europe or America, although the climates of these several regions are, in many places, precisely similar, and all their other physical causes are capable of operating with the same degree of force. Such sentiments, like the dreams of the physicians of the fifteenth century, are at open war with the very rudiments of philosophy.

"There is still a further circumstance, which also contributes to give a very superstitious complexion to the origin of quarantines. The term itself imports, that *forty days* constituted the period of time deemed necessary to be set apart for the purification of things infected. But the adoption of this period cannot be considered as the result of a philosophical inquiry, relative to the nature of pestilential poison, and the space of time requisite for its removal or destruction. It is derived merely from a superstitious regard for the number *forty*, on account of the accidental relation which that number bears to certain events and circumstances recorded in the Old and New Testaments. Thus, the Israelites were *forty* years in traversing the wilderness between Egypt and the Land of Promise. Under the law of Moses, the term of *forty* days was necessary for the completion of certain purificatory processes. Christ fasted *forty* days in the wilderness, for the purpose, as some commentators allege, of purifying his body from all such passions and propensities as might tend to render it disobedient to the dictates of the spirit. Therefore, said the priests, and other superstitious zealots of the day, a *quarantine*, or lustration of forty days, is requisite for the cleansing of vessels, and other articles, contaminated by pestilential contagion.

"Such then, were the time when, and the circumstances under which lazarettoes and systems of quarantine were first established by the nations of Europe. The age was a period of great darkness, and the whole business appears to have originated in, and to have been deeply tinged by the religious bigotry and delusion of the times. As a further evidence of this delusive bigotry, it may be observed, that lazarettoes and pest-houses were, at first, entrusted almost exclusively to the care of ecclesiastics, whose piety and

sacred character were supposed to be a shield against the arrows of contagion. Nor have the rules, regulations, and general management of these institutions undergone any very material amendment or alteration, even down to the present day. In the south of Europe, lazarettoes and quarantine establishments are in nearly the same condition, and under nearly the same government now, that they were three hundred years ago. The light which, like a day star, has burst forth in all departments of physical science, does not appear to have penetrated, as yet, the ancient night of these establishments. They are, in almost as high a degree, overwhelmed by prejudice, superstition, and error, at present, as they were at the time of their first institution. Yet have they served as the chief models for similar establishments in most other parts of Europe. Hence, when the celebrated Howard set out on his travels to acquire a knowledge of quarantines for the benefit of his country, he directed his course to the shores of the Mediterranean. Yet, from the account which that writer has himself given of the several pest-houses and lazarettoes which he visited in Italy and elsewhere, they appear to the eye of philosophy much better calculated to generate than to prevent pestilential diseases. For they are mere dungeons of dampness, filth, and putrefaction. The ceremonies through which all persons and articles arriving at them from sickly or suspected places are obliged to pass, are as unmeaning and preposterous as any of the rites of the most superstitious form of worship. Indeed, such is the perverted state of these establishments, that (supposing their continuance to be necessary at all) it calls for the reforming hand of a medical Luther, or a Calvin, no less than the abuses of the Church did during the pontificate of Leo X. If circumstances do not even demand an entire demolition of them (which I am persuaded they do) they demand, at least, their complete regeneration."

MEDICAL & PHILOSOPHICAL NEWS.

DOMESTIC.

Mode of preserving the Cow-pock Matter in dried Scabs for a long Time.

ONE of the most zealous, and perhaps the most successful persons that we have known to engage in perpetuating the vaccine poison, is Dr. Sylvanus Fancher. He inoculates very successfully with the exsiccated secretion of the pock; which seems to be nothing more than the virus in a state of crystallization. He has acquired, by practical observation, great skill in judging of these pieces of dried virus, in preserving them from decomposition, and in using them for propagating the disease. In a communication to Dr. Mitchill, from Middlebury, in Vermont, dated April 3d, 1807, he observes, "I have succeeded in communicating the kine-pock with virus more than two years old." This will certainly be considered as gaining a point of much importance, since all practisers know the difficulty of keeping the matter from perishing for any considerable time.

Facts concerning the Winter of 1806-7, and the Spring of 1807, at Albany.

The weather during the past winter has been remarkable on many accounts. The previous summer and autumn had been excessively dry in various parts of the United States. October 20th, the first snow storm was experienced here, which covered the ground, but all disappeared the succeeding day. About the middle of November light snows again, but no sleighing until the 3d of December, when a snow fell eight or ten inches deep, followed with cold weather, and several succeeding light snows and windy weather, until the 20th, when the weather became warm, and a thaw ensued. About Christmas the sleighing was spoiled. The weather soon grew colder, and though somewhat changeable, was, for most part of the time, extremely cold, with a constant succession of boisterous winds from the south-west to the north-west, from the 10th of December to the 31st of March, with but little snow, which lay long in the mean.

time, and one heavy rain on the 18th of February. On the 31st of March a violent snow storm set in, with heavy winds, which moderated a little on the 1st of April, and increased in violence on the 2d; from which time till the 5th, the wind blew a gale from the south-west; the snow being about three feet deep where it lay level, with severe cold weather; but it soon grew warmer, and the snow melted gradually away. April 10, Hudson's river broke, having been completely closed for four months. The remainder of the month of April was temperate, and a thunder shower on the 20th announced the return of the "milder season of dews;" though now (May 1), notwithstanding we have experienced many heavy rains and thunder showers, though the fields are arrayed in the "green livery of spring," and the forests begin to unfold their foliage, yet the distant mountains appear white with snow, and will probably so appear for many days to come.

The season has been extraordinary on account of its sudden changes from extreme cold to moderate weather, with frequent snows, which were soon taken off by rain, or a warm sun—from the frequent recurrence of violent gales of wind, which some times would continue, without intermission, for sixty hours, with a cloudy atmosphere; at others, for eighteen or twenty-four hours, and the air perfectly clear, and always in a direction from south-west to north-west but generally from south-west to west; from the remarkable freshets or floods, which occurred about the middle of February, in different parts of all the New-England States, Vermont, part of this, and in some of the Southern States, sweeping away bridges, mills, &c. and inundating the flat lands near to rivers.

The coldest day experienced here was February 9, when the mercury in Fahrenheit's thermometer, at sun-rise, stood at 20° below cypher, that is, 52° below freezing point. The instrument is a very correct one, and was placed in a central part of the city, defended on the north and west by high wooden buildings. Seventeen years before the mercury fell 4° lower, but the observation was then taken on the hill near the old powder-house, where it is at least 4, perhaps 5° colder than among compact buildings in the lower part of the city; so that it may be truly said that this was the coldest weather ever experienced in Albany since correct observations have been made. Cold water sprinkled in the air about twenty-five or twenty-eight feet from the earth,

fell on the ground in hail. The atmosphere was serene and clear.

On the same morning, at sun-rise, the mercury in Fahrenheit's thermometer at Augusta, in Maine, stood at 34° below cypher, or 65° below the freezing point, which is nearly equal to the Greenland atmosphere, and probably unexperienced before in the limits of the United States.

It has been conjectured that some late singular conjunctions of the planets, particularly the total eclipse of the sun, which occurred last June, has produced these extraordinary changes in the earth.

Reasons for supposing Clay or argillaceous Earth to be of vegetable Origin.

The following curious facts and observations are contained in a letter from Levi Bartlett, Esq. of Kingston (New-Hampshire), dated March 30, 1807, to Dr. Mitchell.

"I take the liberty of addressing to you my ideas of the formation of a substance but imperfectly understood, that by collating these facts with such as are already in your possession, they may have a tendency to elucidate the origin of argill.

"It has been observed in many instances, in some of the new settlements in this State and in Vermont, that clay is produced, after the lapse of many years, under the surface, occupying the precise place where it was formerly a deep black earthy mould. Many people in their new settlements have been obliged to manufacture their brick, and draw their clay from the older settlements, at considerable distance and expense, to build their houses; when, after a number of years, it is found in great plenty in their neighbourhood.

"In this vicinity there is now clay in abundance, on the same ground we are told that was formerly a rich deep soil without any clay. The places where this change takes place are mostly in vales and descending slopes from higher lands; the growth is generally large of the various species of Ash (*Fraxinus*), Elm (*Ulmus*), Beech (*Fagus*), Maple (*Acer*), and Birch (*Betula*). The soil is a deep black moist mould, over a loam or sand, and interspersed with a few granite rocks. The mould is composed of much the greater part of decayed vegetables, silica, and some cinis, from the burning the growth on the land; very few if any schistous or argillaceous stones are found in these places. In such situations, where schist or gneis abound, we expect to find clay

as origine. The granite hills and silicious plains, with a thin dry soil, whose growth is several species of Oak (*Quercus*), Pine (*Pinus*), &c. have never been known to produce clay. From these observations I have conjectured, that clay is a vegetable production; for it must be formed either from the decomposition of granite or from vegetables. The granite I speak of is the common kind, composed of quartz, feldspath, schoerl, and mica. The small quantity of alumina contained in the component parts of this compound stone, would not be insufficient to produce such vast quantities of clay, consequently I ascribe it to a vegetable origin, and this converted by some process of nature by means of water, into a substance somewhat similar to the adipocire of animal flesh.

“In this conjecture I was confirmed by the following circumstance. Last autumn having occasion to cut a drain through a piece of low land, which had been a miry, muddy swamp, nearly surrounded by arable land—the canal was cut about twelve rods long, east and west. This land had been covered by ash, elm, and maple wood; the easterly part had been in mowing about ten years, the westerly part recently cleared. In cutting this drain, on the part that had been in mowing for some years, under the mould we found some clay; as we advanced westward, less clay, some lithomarga with sand. Near the westerly end, under the mould (which was about ten inches deep), was a sharp selenitic sand, nearly two feet deep. In this sand I found small veins of clay with pieces of bark and wood attached. At length we came to a part of a branch of an ash tree (*Fraxinus Niger*) about six inches long and three inches in diameter, having its natural organic structure nearly entire to appearance, although far progressed in a state of dissolution. On breaking it, which was easily done with my hands, in its centre I found a column of pure bluish clay, laying longitudinally along its axis. As this branch was enveloped in sand, and no clay could be traced near it, unless where, from appearance, the tree had lain, and was still surrounded with some pieces of it, it seemed a convincing proof that this clay was formed by means of this old tree, which probably had lain there more than a century; for I have cut trees more than a foot diameter over the very site of these remains.”

American Natural History.

On several occasions our work has been enriched by the communications of Mr. Rafinesque. This is particularly the case in Hex. ii. vol. ii. p. 208, and vol. iii. p. 422. He pursues his botanical researches with ardour at Palermo, in Sicily. There he is also engaged in arranging the materials he collected during the tours he made in the Middle States. He is preparing his publication on the plants of North-America. As specimens of his progress, he has actually sent to Dr. Mitchill plates of two new Cryptogamic plants, the *Carpanthus Axillaris*, and *Volvaria Coccinea*, which have been engraved there. This ingenious and indefatigable gentleman, though engaged in the service of the American Consulate, gives encouragement to hope, that some of his original Essays, on American Natural History, will be forwarded for publication in the Medical Repository.

Important Experiments on Stone and Gravel in the Urinary Passages of Men.

Experiments of an instructive and practical tendency upon calculous concretions both in and out of the body, were published by an Irish physician in 1806. This person is Thomas Egan, M. D. of Dublin, and his memoir on the subject was read before the Royal Irish Academy. The author having been physician for several years to Simpson's Gouty Hospital, had great opportunities of observing the connection between gout and stone; and also of making observations and experiments with more than common advantages upon the latter.

Dr. E. admits that urine contains the matter of calculus naturally dissolved in it. This, he says, is not in healthy states separated from the urine, by *mere cooling*, as is repeated in almost all the books of chemistry; but requires, likewise, rest and time, amounting in some instances to one, two, or three days, and sometimes even a longer duration. This material is called the uric acid. When urine is exposed to a warm temperature, and begins to emit the volatile alkali, it at the same time begins to deposit the uric acid in a crystallized form.

Observation has shown that males are by far more liable to calculus than females. Infancy and childhood are more liable to it than the season of more advanced years. Boys of from three to eight years old are more in danger of these urinary concretions than any other persons.

He concludes, from a broad survey of the facts, that acid drinks, such as small sour wine, cider and punch, predispose the urine to deposit its uric (or lithic) acid in a concrete form.

Alkalies taken into the stomach in sufficient quantity, and persisted in for a convenient time, impart their peculiar quality to the urine. The caustic alkali will do this after being taken for a few days, and in small doses. But the carbonates do not by any means destroy the acidity of the urine so readily.

Vinegar, lemon juice, acid of tartar, cream of tartar, carbonic acid gas, sulphuric acid, nitrous acid, and muriatic acid, all cause a premature separation and crystallization of the lithic portion of the recent healthy urine. And acid liquors have this operation in closed vessels, and in a temperature equal to that of the human body. Healthy urine contains a predominating acidity; though it is but faint. The urine of a gouty patient, toward the end of the paroxysm, abounds with a very evident acid.

Alkalies have the greatest powers of any substances to prevent the decomposition of urine and the precipitation of its crystalline acid. Lime-water, in exceedingly small quantity, caustic pot-ash, crystallized carbonate of pot-ash, Falconer's aqua mephitica alkalina, salt of tartar, crystallized soda, and Kinsley's soda-water, all prevented the separation of the uric acid, probably by uniting with it, and retaining it in solution.

Dr. E. has proved experimentally that there are true *lithontriptics*. Water saturated with carbonic acid gas is really capable of dissolving calculi of the *ammoniacal-magnesian* kind; but that menstruum has no operation at all upon those of the *uric acid kind*. Upon this latter lime-water has a manifest action, dissolving it at a very perceptible rate; so had a weak solution of caustic pot-ash. The addition of sugar to such an alkaline solution rather increases than diminishes its influence. Common and crystallized carbonates of pot-ash also dissolve the stone. The waters of Carlsbadt, in Bohemia, relieve gravelly and gouty patients by means of the soda they contain. And they are justly considered as excellent lithontriptics. Salt of tartar and soda-water both dissolve the stone.

But it must be observed, that alkalies taken internally must be in such quantity as to neutralize the acetic, sebatic or septic acid in the stomach and duodenum, the uncom-

bined phosphoric acid in all urine, the benzoic acid in that of children, and the ammoniacal magnesian phosphates in the same fluid in all the stages of life. After having saturated these, it may alkalize the urine itself, and impart to it a lithontriptic quality.

Twenty drops of a very weak and partly "aerated alkaline ley, added to four ounces and an half of recent urine, rendered it capable of acting considerably upon an uric acid calculus in a temperature of 74 degrees. One drachm of exsiccated soda, with a few grains of capsicum, or drops of an essential oil, and soap or extract enough to form it into twenty pills, is an excellent recipe for a gravelly medicine. Three, six or more may be taken in the course of a day, according to circumstances, and they have a very happy preventive and remedial operation.

The Canvass-Back Duck frequents the River Hudson, in New-York.

To the history of this most exquisite bird of the Duck family, we devoted a page or two in the fifth volume of our first Hexade, p. 342. And in the second volume of our second Hexade, p. 208, we stated the Canvass-Back to be the *Anas ferina* of Naturalists, and its favourite food the *Valisneria Americana*.

Within a year or two it has been ascertained, that this dainty water-fowl frequents the Hudson as well as the Susquehannah and Potowmac. The principal feeding-place is the neighbourhood of Pollepel's Island and Fishkill Landing, where they sometimes overspread acres of water. There the *Valisneria* grows plentifully a little above the reach of the salt-water; and these diving ducks resort there to feed on it in great numbers. When the ice prevents their obtaining their favourite food, they take their departure, and return in the spring as soon as the river opens.

Until very lately, the gunners used to confound these birds with broad-bills, red-heads, and other ducks, and sell them altogether. There was then no difference in the price. Twenty-five cents would purchase a Canvass-Back as readily as an ordinary duck. But now the distinction is well understood by the fowlers. They bring them to market, and offer them for sale as true and real Canvass-Back Ducks. The lovers of good eating buy them eagerly, and the price of a pair of these rare birds has risen to two and three dollars. Good preparations of the New-York male and female

were made by Mr. De la Coste, and are now in the collection of ornithology in Princeton College; and another pair from the Hudson, in fine preservation, is in the possession of P. A. Schenck, Esq. the Surveyor of the port of New-York.

Resemblance of the Montock and Algonkin Tongues.

The following curious piece of information is extracted from a letter by John L. Gardiner, Esq. to Dr. Mitchell, dated Gardiner's Island, February 4, 1807. "It is a singular circumstance that many words in the Knisteneaux and Algonkin languages are exactly like those of the Montock Indians, on the most eastern extremity of Long-Island; and seem in part to justify an observation of Mackenzie, in his tour from Canada to the Pacific, that there are three distinct nations on the Continent of America; the *Esquimaux*, who probably came from Greenland; the *inhabitants on the borders* of the Pacific below the latitude of 55° north; and those of the *midland region*, whose course has been from the Atlantic towards the Pacific ocean: conquest among the savages extending as usual from east to west. Similarity of language I conceive to be a more certain method of tracing the origin of savage nations than similarity of customs, which among uncivilized nations are nearly the same from the ancient Jews to the modern nations of Indians in America."

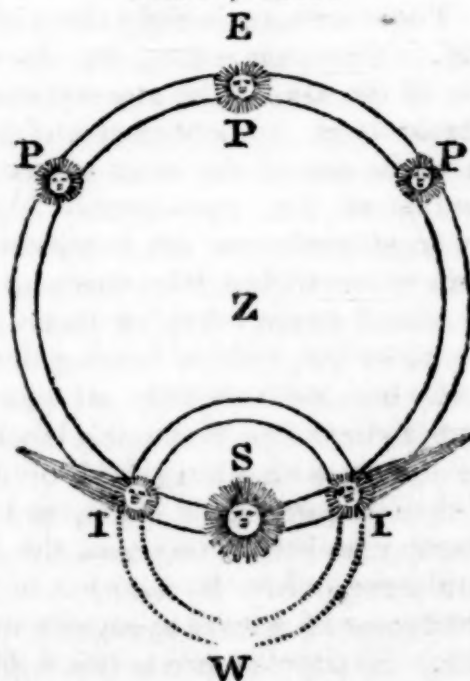
Curious Example of an Animal Brood preserved in the Body of the Parents after Death.

Within ten or twelve years the trees in and about New-York have been unusually infested by a worm which appears to be the larva of some insect. It lives in a tough cover of its own manufacture, which is fastened by a very firm ligament to the twig of the poplar, willow, or other tree which it inhabits. This cover or sheath is of an elliptical form, lined in the inside with soft silk, and on the outside beset with pieces of bark or stems of leaves, rendering it very rough. The animal often descends from this habitation by a web, towards the earth, and at pleasure winds itself up again. Though I have never seen any wings upon its body, I have been at a loss to assign it a place among the *apterous* insects. It feeds upon leaves during the summer season. Great numbers of these animal pods are seen among the smaller branches, and have the appearance of

the cocoons of silk worms. The structure of the outside is well adapted to prevent its being swallowed by birds. This animal has a peculiarity in the manner of perpetuating its species. The adult female dies, during the winter, within the cover or sheath. The body withers away, or dries up to a mere skin. But on breaking this husk, the whole brood of eggs is discovered within the exsiccated carcase of the parent insect. They are very numerous. I have counted in one of such dead bodies, from a tree in my garden, above eight hundred of these animal rudiments. They are bedded or enveloped in a sort of yellowish down.

In other animals, as far as my observation extends, the progeny is excluded from the body of the parent, whether she be oviparous or viviparous, before death. But here the parent dies without bringing forth her offspring; and, strange to tell, they survive, though enclosed within her carcase during the whole time that putrefaction changes it to a mere skin or membrane.

Remarkable Meteors seen at New-York, on the 30th Day of March, 1807.



About three o'clock in the afternoon, the sky exhibited a remarkable appearance. The sun was surrounded by a small halo of rainbow colours. The part toward Z was bright. The dotted part was faint and defective. Through the centre

of the sun at S in this small circle there appeared a larger white circle, extending to the eastward far beyond the zenith Z. At the points of intersection I I, were two large and bright parhelions, with luminous tails. And, in the points P P P, of the larger circle, were three other parhelia or *sun-dogs*.

These meteors were followed, in about twelve hours, by a terrible gale of wind from the east, attended with snow, hail, and sleet; and by a tempest scarcely less furious, though less snowy, from the west, on the first day of April. The tide rose higher than had been known for several years, and many vessels were driven ashore on the coast.

Singular Forms of Ice-Islands.

The following is the description referred to in our present volume, p. 227. It was written by a gentleman who was passenger on board the ship *Hercules*, when she was surrounded by islands and fields of ice, in the spring of 1805.

“ April 27. This evening we made the Grand Bank of Newfoundland, and are, by calculation, 1200 miles from the Capes of Delaware.

“ April 29. There are now in sight three islands of ice of immense height. They are afloat, but do not appear to have the motion of the sea. The atmosphere in their vicinity is remarkably cold. About twelve o'clock we passed what appeared to be one of the most stupendous works of nature, a mountain of ice, considerably higher than our main-top-gallant-mast-head; we ran to windward of it, and so near, that we were within fifty yards of it. At four o'clock we had passed seventy-five of these islands; some had the appearance of large ships bearing down before the wind; others, of churches and lofty steeples, and another cluster so large as to be called Neptune's head-quarters. At five o'clock we fell in with a large field of ice, which extended farther than the eye could reach, and which lay directly in our course; no person on board the *Hercules* ever witnessed such a scene. Mr. H. who has been three years on the north-west coast of America, says he never saw such mountains of ice. In consequence of this field, we were obliged to alter our course, and are now going at the rate of seven miles an hour directly from our port. About twelve o'clock at night we fell in with a field, supposed the same from which we stood in the afternoon, which obliged us to alter our course a second time; the Captain thinks this a

very extraordinary circumstance, being in the latitude of 47° north.

"April 30. We are now entirely surrounded with mountains and islands of ice. At eleven o'clock A. M. we had passed one hundred of these floating wonders of nature; one in particular had the appearance of a regular built house, surmounted by a large, tall, and lofty spire, much like the lighthouse at the entrance of Delaware bay, only to appearance about three times its height. These received the appropriate names of Noah's Ark and Pompey's pillar. We are now bearing directly from our port, and suppose we may count at least three days to clear the ice by running to a southerly latitude.

"May 1. Several islands of ice in sight this morning, though not so numerous as yesterday. About three o'clock we descried a large field of loose and broken ice a-head, the Captain hesitated in what manner to proceed. At five we came up with the main body, and got so much entangled in it, that it required great attention to pass through. At eight o'clock we cleared the whole field, and had a free and open sea."

Pestalozzi's Plan for quickening the Senses and maturing the Minds of Children.

A new plan of education has within a few years been practised in Switzerland, and is attracting notice in Germany and France. The author's name is Pestalozzi, and he is a native of Zurich. He has written several elementary works explanatory of his plan and principles, in the German tongue. He began to teach at Stantz, in the Canton of Underwald, just then ruined by the campaign of 1798. The events of the Helvetic war obliged him to leave Stantz much against his will, and immediately after he had brought his plan into operation. He then moved to Berthoud, a small town in the neighbourhood of Berne. In 1802 he was forced, in consequence of revolutionary events, to change his residence, and once more to move his school. At Yverdun, in the Pais de Vaud, one branch of the institution was fixed, and another at Buchsee, a village two leagues from Berne.

His principal assistants in executing his scheme of education are, Mr. *Krusi*, a native of Gaiss, in the Canton of Appenzel; Mr. *Tobler*, a teacher from Basle; and Mr. *Buss*, son of a priest at Tubingen. He enjoyed the patron-

age of Mr. Fellenberg, a wealthy proprietor at Buchsee. The instructors were afterwards assisted by Mr. De Muralt and Mr. Niederer, two ministers of the Reformed Church; the former from Zurich, and the latter from Glaris. And more recently they have obtained the able services of Mr. Barraud, of Yverdun.

An exhibition of Mr. Pestalozzi's elementary course was published at Paris in 1805, by Dr. D. A. Chavannes, member of the grand council and society of emulation in the Canton of Vaud.

On consulting this book (a copy of which was politely forwarded to Dr. Mitchill by Mr. J. Cox Barnet, Consul of the United States at Havre de Grace), we find it to contain a project for commencing education in early infancy, of exercising the senses and the moving powers by immediate direction to their proper objects, and to make the pupils acquainted with themselves and the things around them by examining sensible objects rather than by studying abstracted ideas of them. By thus beginning soon, and pursuing the method he has devised, Mr. P. teaches children to be better observers, to acquire readier perceptions, to draw more just conclusions, to be more correct calculators, and, in short, to be more exact reasoners than have been known to be formed by any other mode of instruction. We, however, see nothing marvellous in these proceedings.

The fundamental points on which he dwells, in early infancy, are three; the NAME, the FORM, and the NUMBER of natural objects or things. To correspond with this arrangement, he calls upon mothers to be the instructresses, and assigns to them a threefold task. 1. To perform the duties of the MOTHER'S MANUAL, embracing the knowledge and denomination of the parts of the body, and of the chief objects by which the youth is surrounded. 2. *Intuitive instruction with respect to numbers*; and, 3. *Intuitive instruction in regard to shapes and dimensions*. Then follow other branches of knowledge, such as reading the German and French tongues, Geography, and Natural History. It seems probable that there is more puffing than profit in much of this.

Children of five and six years old are just fit for Mr. P's tuition; though he does not refuse them if they are older. The plan is recommended as being peculiarly adapted for the poor. The author appears to be a philanthropist of the

warmest zeal. And much of his instruction is imparted by three tables to teach whole numbers, fractions, and fractional parts of fractions, without the use of the common cyphers.

English native Rock-Salt, or Sal Gem.

Swinton, Blease and Co. salt proprietors, Liverpool, have circulated the following letter concerning the qualities of the native rock-salt, afforded by the mines of Northwich, Cheshire, England; which the Editors have received with a sample of the article. They publish it for the purpose of elucidating the trade and economy of sea-salt; observing at the same time, that experiments only can determine the strength of the native article as dug from the earth. These experiments must be by preserving animal flesh, and not little trials by analysis, which are of trifling value:

“ I have received your letter of June 7th, in which you desire me to furnish you with my reasons for the opinion I sometime since gave you, ‘ that pure rock-salt, when crushed and reduced to a grain of moderate size, would be at least as well adapted to the preservation of animal flesh, as either the large grained-fishery or bay-salt.’ I the more readily comply with your request, as every consideration I have since been able to give this subject, has only tended still more to confirm this opinion, an opinion which had its original foundation not in any pre-conceived theory, but which resulted from a series of comparative experiments on the component parts of salt-rock, and the different kinds of artificial salt; and I am confident you have only to prevail upon the fish curers and provision merchants to give trial to this salt, in order to place the question out of all doubt, and to convince them that there is no ground for any preference being given to the bay-salt.

“ It is scarcely necessary to state to you a fact so well known as this, that whilst some species of salt possess the power of preserving animal flesh from putrefaction, others have a tendency more rapidly to promote it. Of those which retard its putrefaction, pure muriate of soda, or common salt, possesses this power in the highest degree; and the more entirely this is freed from the admixture of other salts, the more completely is it adapted to this purpose. In order then to ascertain the comparative powers of salt-rock, and the different specimens of manufactured common salt in resisting putrefaction, we have first to inquire which of

these approaches nearest to the pure muriate of soda. I will not take up your time by giving you the detail of the experiments I made to ascertain this question, but will content myself with stating to you their general result.

"An ounce (four hundred and eighty grains) of Cheshire stoved salt, yielded, after solution and precipitation by carbonate of pot-ash, a precipitate which when dried amounted to three grains, and was found to consist of carbonate of lime and carbonate of magnesia. The remainder was a pure muriate of soda.

"Four hundred and eighty grains of the large grained fishery salt, after solution, and the addition of carbonate of pot-ash gave a single grain only of precipitated earthy salt; the rest was pure muriate of soda.

"An ounce of the best *St. Ubes Bay-salt** being in like manner dissolved, the earthy salts precipitated from it by the addition of carbonate of pot-ash amounted to twenty-two and an half grains.

"An ounce of the transparent rock-salt gave no precipitate on the addition of a solution of carbonate of pot-ash. It was found to consist of pure muriate of soda, without any admixture of either earth or earthy salts, and to have nothing entered into combination with it, except a very minute portion of iron.

"On examining different specimens of the *less transparent*, and the *brown rock-salt*, it was found that these consisted of pure muriate of soda, combined with a certain portion of earth, varying in quantity from one to thirty per cent. This earth was found to be entirely the argillaceous or common clay. Some of the specimens contained a few grains of sulphate of lime in four hundred and eighty grains of the salt-rock.

"On referring to the results of these experiments, we find that, 1. The stoved and large grained fishery salt have each some portion of earthy salts in their composition, but it will be readily allowed that this is much too small to have any influence on their general effect.

"2. That the bay-salt contains, as might be expected, from the less pure source from which it is obtained, a much larger proportion of earthy salts, combined with the muriate of soda.

"3. That the transparent rock salt approaches nearer to

* I received this from Cork from the gentleman who had imported it.

a perfectly pure muriate of soda, or to that salt which experience has taught us is the best fitted of all others for the preservation of animal flesh from putrefaction, than any of the artificial salts.

“ 4. That the salt-rock, which is less transparent, or brown, contains, combined with the muriate of soda, a certain proportion of argillaceous earth (more or less considerable in different specimens of the salt-rock), and also some small portion of sulphate of lime. The first of these is perfectly insoluble in water, and so far as the curing of provisions is concerned, is a mere inert substance; the latter is soluble in water only in the proportion of one to five hundred; and though it will not aid the preservative powers of the muriate of soda, it has no tendency to promote putrefaction.— In the salt-rock, which is known to the trade by the name of Prussia rock, the proportion of earth to the muriate of soda is scarcely ever so great as in the bay-salt; whilst in the latter the proportion of earthy salts is, as has been mentioned, much greater than in the former.

“ After what I have said, you will naturally be led to inquire, whence it is that the curers of provisions have given such a decided preference to bay-salt for their purposes. This I conceive admits of ready explanation. In the first place, you will recollect that the import duty on bay-salt in Ireland, where the bulk of provisions for long-keeping is cured, is only one shilling and five-pence per bushel; whilst on salt of British manufacture it is two shillings, being a difference in favour of bay-salt, as has been well shown by the author of ‘Remarks on the salt trade,’ &c. of more than the invoice cost of the British salt. A second reason for the preference given to this salt is found in the size of its crystals, which are much larger than the stoved, or than the common fishery salt. For making the pickle used for *striking* the meat (the first part of the process in curing fish, and preserving animal flesh) it seems very immaterial which of the kinds of salt is used, all that is wanted being a fully saturated brine, which may penetrate amongst the fibres of the animal substances immersed in it; but in the subsequent part of the process, the *packing* the fish and provisions, it is necessary to have a salt of large grain, which may remain long undissolved betwixt the layers of these, preventing the different portions of animal matter from coming into close contact, admitting in some degree the brine in which they are pickled to flow

betwixt them, and furnishing a constant supply of saturated brine, from the solution of the salt in the fluids exuding from the animal matter, to every part of the packed provisions—Such a salt it is allowed the bay-salt is; and I readily admit that it is a salt well adapted to the packing of provisions. All I contend is, that no reason can be assigned (exclusive of the lower import duty) why it should be preferred for this to the large-grained fishery salt, or to the salt-rock, when crushed to a grain of moderate size. In hardness and compactness, qualities of much importance in the salt used in packing provisions, neither of these last are exceeded by it; the experiments I have mentioned show that they more than equal it in purity, and in freedom from earthy salts; and I am persuaded nothing is wanting but a fair trial of their use in the packing of provisions, to do away the exclusive prejudices which have (especially in Ireland) existed in favour of bay-salt.

“With respect to the large-grained fishery salt, this is, you know, constantly used at the victualling-office, for the purposes we are mentioning, and I believe no doubt has ever been entertained of its being as well adapted to them as bay-salt. From the analysis of the salt-rock it has appeared that there is scarcely any chemical difference betwixt it and the large-grained fishery salt, they are each almost a pure muriate of soda, and are each in this respect preferable to the bay-salt. The other property wanted is a grain of moderate size and hardness, which may not be too readily dissolved, and will keep the parts of animal matter separate from each other. Such a grain you can have no difficulty in giving to the rock-salt, and when you have done this, you have got a salt more than equal to the bay-salt in purity, and in every property wanted for the curing and packing of provisions.

“One further remark only I have to make to you on this subject. The salt-rock appears to be more compact and close in its crystal than any of the artificial salts; there will consequently be an equal portion of salt in a grain of this somewhat less in size, and a smaller quantity by measure may probably be used. What will be the proper relative proportion will soon be learnt by experience.”

Ellicott's Map of West-Genesee, in New-York.

Among the instructive delineations of American Geography latterly made, Joseph and B. Ellicott's Map of West-

Genessee, published in 1804, ought to be noticed. It contains that part of New-York which lies beyond the north boundary of Pennsylvania, in lat. 42°, and west of the Genessee river, and is bounded on the north and west by Lake Ontario, Niagara river, Lake Erie, and the western Pennsylvania line, of 18 miles 50 chains and 91 links south from Lake Erie, comprehending the tract purchased by the Holland Land Company. Its dimensions are 20 inches by 26. There is a remarkable ridge of rocks running from east to west on the south side of Lake Ontario, quite to its extremity in Upper Canada. It consists of lime-stone, disposed in horizontal strata. It slopes away toward the lake: its perpendicular height is about 450 feet. The Niagara river forms its great cataract, by passing over these calcarious rocks. All the other streams which pass them in their course to the lake likewise form great falls. From the top of this ridge to Lake Erie, the land is generally level; and the same is the predominating character of the country from its base to Lake Ontario.

Meteorological Remarks made in New-York during the pestilential Season of 1798, and the preceding years.

A table showing the mean temperature for the months of July, August, and September, in the years 1794, 1795, 1796, 1797 and 1798.

1794.	{ July 70	1797.	{ July 76
	{ August 70		{ August 72
	{ September 60		{ September 64
1795.	{ July 73	1798.	{ July 74
	{ August 79		{ August 80
	{ September 60		{ September 65
1796.	{ July 71		
	{ August 76		
	{ September 75		

Some opinion may be formed on the quality of the air during the dreadful sickness of 1798 from the following facts. Mr. Jotham Fenton, who digested the before recited results from Mr. Baker's Meteorological Journal, and who persevered in making meteorological observations during the sickness, at the Exchange, near Broad-street market, communicated to Dr. Mitchill the more memorable occurrences which presented themselves to him. "The barometer stood very high for a considerable time before and after the great rain on the 14th of August, which is uncommon

at such times. This seems to show that hereabout was a centre of different currents of air from different regions, while at the same time the atmosphere was very hot and much rarefied, and without high winds to purge it. Although thunder was heard on 15 days of August, yet it did not abate the heat. Much mould immediately followed the great rain, especially on substances abounding in animal oil. The clouds and vapours visibly centered over and in the vicinity of New-York, and formed themselves nearer and lower than usual, throughout the season from spring to fall.

“Putrid stench frequently arose, not because the air was light, hot, cold or dense, but ascending from the corrupting substances on the surface of the earth, in all these states of air, at unequal intervals. At these times an unusual putrefaction took place in both animal and vegetable substances, insomuch that about the 20th of September I observed that dried cod-fish boiled, and afterwards mixed with potatoes and warmed in a pan, turned to a bluish-black colour, and emitted a strong putrefactive smell in less than twenty-four hours.

“During this time, not only man, but dogs, cats, birds, and all domestic animals were affected by it. Many dogs were sick and died. They were taken with retchings to vomit and purging. Cats were seized in a somewhat similar way. There was a general diminution of appetite in most animals, as in guinea-pigs, squirrels, birds, &c. Great numbers of kittens died in convulsive fits. Some of the cats puked up a substance of the nature of a frothy slime, and their excrements were very black. During September several thick fogs came from the sea. The fogs often settled in thick dense bodies over Staten-Island and other places, and seemed to possess a great quantity of some kind of acid, as an uncommon corrosion took place of iron and other metals. During many times of the prevalence of this contagious air, the electrical machine might be excited powerfully, at others very little; but in general it has worked very powerfully in the greatest heats.”

At Columbia College about the 20th of September white cotton cloth left out in the fog for a night became indelibly spotted wherever a drop of water settled. The structure of the filaments and threads was so changed that several boilings in ley could not restore the former whiteness. Bright iron was exceedingly rusted during one night; and the leaves of certain trees were observed to be corroded

and injured by the poisonous matter descending with the mist, though in other cases, where the constitutions of certain plants were not overcome by its stimulating activity, they appeared to be benefitted by it, and to grow more luxuriantly than before. The same was remarked in the gardens between Pearl and Cliff-streets. During the same time a saline efflorescence was in many places observed on the bricks of the pavements.

Discoveries in the high Latitudes of North-America.

1. *Mr. Hearne's Journey to the Northern American Ocean.*

A journey of discovery was performed by Samuel Hearne, an agent of the Hudson's Bay Company, in 1769, 1770, 1771, and 1772. The account of it was published in London in 1795, in one volume quarto. Mr. Hearne possessed that vigour of constitution, acquaintance with the savages, and zeal for traversing unexplored parts of the wilderness, which qualified him for such severe and hazardous service. Samples of copper had been brought to the Company's factory at Churchill river, soon after its first establishment in 1715. More had been exhibited from time to time. The Indians said the mines were not far distant from a very large river, and the Company's agents supposed this river must empty into Hudson's bay, and, of course be accessible by water. An attempt had been made in 1719, by Captain James Wright, to find the Straits of Anian, and discover gold and other valuable commodities to the northward. But the whole party perished miserably on Marble island, though their fate was not positively known to the Company before 1767.

The Indians continuing to bring specimens of copper to the factory, and to tell many things about the grand river in the year 1768, the Company, at length, in 1769, engaged Mr. Hearne to undertake a journey to find the place, and to report to them such discoveries as he should make. He accordingly made two expeditions, one to the westward as far as *Shethannee*, and another north-west to *Doobauit* river, but both of them were unsuccessful as respected the main objects of inquiry. Not discouraged with these rebuffs and disappointments, Mr. Hearne made a third attempt in November, 1770. In this he was more successful; for, after having proceeded in a west-north-west course over *Island* lake, *Cathawachaga* river, *Snow-bird* lake, and *Pike* lake, to a lake called *Theleweyazeyeth*, he turned to the northward in quest

of discoveries. In this course he passed Titterneg lake, Scartack lake, Clowey lake, Partridge lake, Catt lake, Thay-noykyed lake, Thokyelyned lake, and Congia lake, to Congecathawachago, in $68^{\circ} 46'$ north, and $118^{\circ} 15'$ west of Greenwich. After this, he traversed the ridge of stony mountains, and the Buffaloe lake beyond them on the ice. At length, in July 1771, after a series of rugged and difficult adventures, he arrived at his point of destination, the celebrated Copper Mine river. The natives make all their hatchets, knives, daggers and utensils of the native copper picked up hereabout. He descended this river until he saw tide-water and seals. The natives had plenty of seal-skins and whale-bone. On the 18th July, at this place, the sun was a good height above the horizon at midnight. About thirty miles from the sea, Mr. H. saw some stunted pines, dwarf willows, cranberry and heath bushes, patches of common grass, and plenty of good scurvy grass; but as he approached the ocean, these productions grew thinner and scarcer, until vegetation, in a great degree, disappears upon the barren hills and marshes of the north. At this margin of the ocean, Mr. H. saw many sorts of sea fowl, such as gulls, loons, black-heads, old wives, and others. After travelling about thirty miles to the south-south-east, he reached the copper mine itself, where, after long searching, he and his companions found a piece of native copper weighing about four pounds. But there was nothing like a mine worthy of being worked by the Company for profit. All the reports concerning it had been enormously exaggerated. The place where Mr. H. reached the ocean, is reckoned to be in about $71^{\circ} 54'$ north latitude, and in about 120° west longitude. In our Hex. i. vol. v. p. 462, we gave our readers a sketch of American discoveries in the north. Further information on these improvements in Geography was offered them in Hex. ii. vol. i. p. 289. When to these are added the result of the voyages of Meares, Gray, Kendrick, and Vancouver, on the north-western coast, and the discoveries of Mr. Hearne, there will be little reason to think that a passage exists between the Atlantic and Alaskan seas, southward of the 70° of latitude.

2. Meares's Voyages of Trade and Discovery on the North-west Coast of America.

In the year 1791, two octavo volumes were published in London, of voyages made by Captain John Meares, from

Bengal, and China, to the north-west coast of America. They were performed between 1786 and 1789. They served to stimulate both geographical and commercial curiosity. For this trading navigator, after having taken a repeated and extensive view of the shores and islands between the latitude of 45 and 60° north, became persuaded of the reasonableness and probability of a communication by water, between some of the great sounds, inlets, and openings, back of Nootka, through to some part of Hudson's or Baffin's Bay, and thus renewed the long-abandoned project of a north-west passage from the Eastern American to the Western American ocean. Captain Meares also enlarged the ideas of men of business, relative to the profits of the commercial intercourse first chalked out by Captain Cook, between the regions of North-west America and China. He explained the value of that most important article, the skin of the sea-otter. He related how the skins of the furred seal, sea-cow, sea-lion, speckled seal, and common seal, can be procured there; so also might those of the beaver, martin, sable, river-otter, ermine, black and other foxes, grey, white and red wolves, wolvereens, marmots, racoons, bears, mountain sheep (whose fleece is extremely long and fine), common deer, moose, and elk.

He told that ginseng grew near Cook's river in great abundance, and of a better quality than that of the eastern side of America; that black whales were numerous in the northern, and spermaceti in the southern latitudes of the Pacific ocean; and that the neighbourhood of Nootka, and the country of New-Albion, possessed a mild climate and a fruitful soil. He alarmed the British parliament on his return, by announcing the claim set up by the Spaniards to all the country from Cape-Horn to the 60° of north latitude, by relating that a fortress had been erected by them at Nootka, and by stating the injurious treatment British subjects had received from them while they were carrying on business there. He prompted the nation to a more minute investigation of that part of America than it had ever received before from any European; and, in short, Captain Meares's statements, after having nearly produced a war between England and Spain, brought on a negociation between the contending governments, by which the latter agreed to demolish their works, and quit the country. This work is illustrated by a number of charts, maps, and drafts.

It was in September, 1788, that Captain Gray, of Boston,

in the sloop Washington, of one hundred tons burthen, came to Nootka, and found Meares there constructing a vessel. Capt. Gray had left home in August, 1787, in company with Captain Kendrick, of the ship Columbia, of three hundred tons, but had since been separated in a gale of wind. Their object was to open the fur-trade between New-England and the North-west Coast, and to provide funds for their ships bound to China, that they might be enabled to return with cargoes of tea and other goods of that country.

3. *Vancouver's Discoveries on the North-west Coast of America.*

We next insert, for the benefit of our readers, a brief abstract of the voyage and discoveries made by Capt. George Vancouver, between the years 1790 and 1795, on the north-west coast of America.

The British seem to have set up a claim to all that part of North-America which lies to the westward of their settlements in Canada and Hudson's Bay, quite to the ocean. This was followed by a sort of trading establishment at Nootka Sound earlier than 1789. The Spaniards, feeling a jealousy and alarm at this, sent a party, and dispossessed the British in 1789. A solemn negotiation and discussion took place between the courts of London and Madrid in consequence, and a war was on the point of breaking out. But an accommodation of the dispute took place, on the Spaniards agreeing to withdraw, and restore the possession of the stations at Nootka port, or Port St. Lawrence, and at Port Cox, fifteen leagues to the southward, to Great-Britain. To regain this possession was one object of the government in planning this voyage of discovery. Others, however, were combined with it, and these were to acquire accurate geographical information, whether there existed any means of water-intercourse from the North-west Coast to the British dominions on the opposite side of America, and to ascertain the number, extent, and situation of the settlements made by any European nation between the latitudes of 30 and 60° on the North-west Coast.

Captain Vancouver arrived on the coast of New-Albion in April, 1792. He surveyed this land from St. Domingo, the southernmost of the Spanish settlements in New-Albion, lat. 30° along the coast where missions are established, to wit, El Rosario, St. Thomas, St. Miguel, St. Diego, St. Juan, St. Gabriel, Santa Buenaventura, Santa Barbara, La

Purissima, St. Luis, St. Carlos de Monterrey, a Soledad, Santa Cruz, Santa Clara, to Port St. Francisco, in about 38° north. Thence he proceeded along the Point de los Reyes to Port Bodega, and Punta Barro d'Arena, to Cape Mendocino, Rocky-point, Point St. George, Cape Orford, Cape Gregory, Cape Perpetua, Cape Foulweather, Cape Look-out, in lat. $45^{\circ} 32'$, Cape Disappointment, Cape Shoalwater, Point Grenville, Destruction Island, and doubling Cape Flatterer, or Classet, on the outside of Duncan's rock, entered the supposed Strait discovered by the Greek pilot, John de Fuca, in 1592. This Strait is now ascertained by Captain Vancouver and the Spanish navigators to be only an opening to the south of the great island Wakash, called also Quadra and Vancouver's island. He sailed between this and the continent, through passages called the Gulph of Georgia, the Canal of Nostra Signora del Rosario, and Johnstone's Straits, to the junction of this arm of the sea with the ocean at the north-western extremity of the island at Queen Charlotte's Sound. On the western side of this island, and about midway between Fuca's Straits and Queen Charlotte's Sound, is the celebrated Nootka Sound. In the course of this survey, he explored, to a considerable distance, Columbia river, Admiralty inlet, Loughborough canal, and many other inlets and canals along the coast, and among the islands.

Afterwards Capt. Vancouver proceeded northward, along the coast, from Queen Charlotte's Sound to Fitzhugh's Sound, and thence through and among islands which he calls Princess Royal's islands, Queen Charlotte's islands, Pitt's Archipelago, Point Mitchell, Prince of Wales's Archipelago, between 55 and 56° , to Admiralty island, in $57\frac{1}{2}^{\circ}$ north. Thence he proceeded to explore King George the Third's Archipelago, Cape Fairweather, Beering's bay, Prince William's Sound, Cook's inlet, (both in lat. 60° north, and about 210° east) and Kodiak.

The names he has given to these regions are, New-Albion, New-Georgia, New-Hanover, New-Cornwall, and New-Norfolk, and they are displayed at full length, on the large and elegant charts which accompany the narrative of his laborious and successful voyage. Within these limits of his survey, there is no river, canal, or passage to Hudson's bay, or any part of the Atlantic; so that the notion of a north-west passage is once more exploded.

4. *The following Account of Russian and Massachusetts Enterprize, along the West Coast of North-America, was drawn up by Jacob Crowninshield, Esq. of Salem, for Dr. Mitchill. It is highly interesting, and has a near Connection with the successful Attempt made by Captains Lewis and Clark, to penetrate by Land to the Pacific Ocean.*

"I fear it will not be in my power, dear Sir, to give you very correct information as to the points of your inquiry. You ask, "Whether I am in possession of any facts relative to the settlement or migration of the Kamschatkadales, or subjects of Russia, by land or sea, along the north-western coast of America. I am in possession of no facts, except from the information of others; but I believe it is certain, that the Russians, for eight or ten years past, have been on the coast, and that they are extending their settlements, if they may be called such, to the southward. They come from Kamschatka, and their progress is to the south, where I have no doubt they will prove troublesome either to the Spaniards or to ourselves, if we should ever take possession of that part of the coast, (and we can produce better titles to the country than any European nation whatever). Although I am not now able to point out the places where they have made establishments, yet I have been informed, and I think correctly, that several Russian traders from Kamschatka have fixed themselves at Queen Charlotte's islands, and in that neighbourhood, where they carry on an advantageous commerce with the Indians. They remain over winter,* and collect large quantities of sea-otter and other skins, which are delivered to Russian vessels that regularly visit the coast from St. Peter's, and other places on the eastern parts of Kamschatka. These vessels make frequent voyages, and supply their traders with such articles as will sell to advantage among the natives. I am not positive that I have heard of the Russians making permanent settlements, but I am sure that the Americans have frequently met their traders on different parts of the coast, to the north of Nootka Sound. It is said they mix freely with the natives, learn

* It is now understood that the American Company of St. Petersburg has made a collection of upwards of one thousand volumes in the French and Russian languages, as the commencement of a library intended to be formed in the Island of Kodiak, on the north-west coast, which is the principal establishment of the Company. E.

their language, and endeavour to conciliate them by every means in their power ; and I was once informed by a gentleman who had been on the coast, that they possessed a very considerable influence over the northern tribes ; and it was his opinion, as it is mine, that the Russian government contemplates making encroachments to the southward, until they shall be stopped by the Spaniards.* The American traders were assuredly on the coast before the Russians, except, indeed, that a Russian vessel or two might have visited that part of the coast immediately opposite the eastern extremity of Asia, a few years before. It is almost twenty years since the ship *Columbia*, Captain Kendrick, and the sloop *Mary Washington*, Captain Gray, were dispatched from Boston to the north-west coast of America ; they made important discoveries, and took possession of a considerable tract of country, and Captain Kendrick actually received deeds of a large part from some of the principal chiefs. The river *Columbia*, if I am not mistaken, receives its name from the Boston ship I have mentioned. I saw the *Columbia* in Canton, on her return, with a cargo of sea-otter skins, which were advantageously disposed of in that market. The *Mary Washington* afterwards came to China, and made frequent voyages back to the coast, but I believe never returned to the United States. Captain Kendrick having sent the *Columbia* home, under charge of Captain Gray, remained in his sloop, and finally lost his life on the coast, in saluting another vessel. I was acquainted with Capt. Metcalfe, of New-York, who commanded the brig *Eleonora* : he too was early on the coast, and told me he had taken possession in behalf of the United States. Captain Metcalfe

* Mr. J. B. Cordis, who was with Capt. Kendrick, in an official capacity, related to Dr. Mitchill, that on the arrival of Capt. Metcalfe at Washington Island, which was the first port that he visited, he, Mr. Cordis, went on board as his second officer and pilot for the coast. The journals of this gentleman, from the time he entered the *Eleonora* till her arrival in China, were in Massachusetts. Metcalfe was on his second visit to Washington Island when he was cut off. This happened during an attempt to tow his vessel into Bowles' inlet. No more than one man escaped the massacre. The tract of land purchased by Capt. Kendrick was at Nootka. The conveyance was made to him by CALLICUM and MARQUINNA, two of the chiefs, who are since dead. Mr. Cordis thinks the Russians were on this coast as early as 1788. By that time they had proceeded to the southward of Cook's river, and had built several huts. *Columbia* river was named by Capt. Gray, who commanded the sloop *Mary Washington* at the time Mr. Cordis was on the north-west coast with Capt. Kendrick, in the *Columbia*.

was either cut off by the natives, or lost on the coast, on his second trip, after he had visited the Isle of France. Capt. Roberts, and others from Boston, soon followed Capt. Kendrick. Since these voyages were made (and they were the first undertaken from this country) the Americans have carried on a constant trade to the coast, where they collect otter skins and carry them to China, and for ten or fifteen years there may have been from five to ten vessels, principally from Massachusetts, engaged in this trade. I have only referred to their voyages, particularly to Captain Kendrick's, with a view of showing you that the Americans have as good, if not better claims to the country than the Russians can possibly have. I wish a collection could be made of all their voyages; the information to be derived from them would certainly be interesting, and perhaps important in establishing our title to the country embraced within the limits of their discoveries. Captain Metcalfe was a very correct navigator, and had made valuable charts and drawings of the coast and harbours which he had entered, but I presume they were lost with him. The first navigators are chiefly dead, and it is doubtful whether their journals were preserved. Captain Kendrick's is said to have fallen into the hands of a Mr. Howell, who, it is understood, died in Manilla, where it was probable they were lost. Captain Ingraham, who sailed under Kendrick in the *Columbia*, afterwards made a voyage to the north-west coast, and thence to China, and on the passage discovered a small cluster of islands; and I have heard that his journal was presented to General Washington, and it is very probable it may be found among his papers. It is possible that Captain Magee's may be preserved by his friends or relations who reside in Boston, and if a copy can at any future time be obtained, you may depend I will not fail to present it to you. I do not recollect a single vessel ever having performed a voyage from Salem to the western coast of America. Our merchants having generally been engaged in other enterprises, particularly to the East-Indies, by the way of the Cape of Good-Hope, few or none from our port, within my knowledge, have dispatched any vessel round Cape-Horn, upon voyages for sea-otter skins, which are only procured in high northern latitudes, on the west side of this continent.

“The eastern extremity of Asia is so near the western part of North-America, that the Russians have easy and frequent communication with it. I have not the least doubt that

they have views in taking possession of the whole coast, from the northern extremity of the continent (as far as the sea is navigable) to the Spanish settlements to the southward; and I am of opinion the late Russian voyage of discovery is connected with the general system of extending their settlements in that quarter of our continent. The Russians, for the first time I think, are now passing Cape-Horn, and their ships are destined to Kamschatka, and the north-west coast of America. We must wait the event; but if I am not very much deceived, you will find their attention principally directed to discoveries and settlements on our western shores.

“The extreme point of their southern discoveries I cannot ascertain. They collect the skins of the sea-otter and other animals, which they carry to Kamschatka, and by that route they reach Europe and China by land; but I have heard of no Russian vessel making a voyage from the coast direct to China; nor do I think that any Russians have as yet undertaken any commercial voyage from the eastern shores of Asia to China, except indeed they may have passed into some of the ports on the northern and eastern coasts of that country, which are not frequented by our navigators. The European and American traders are only allowed to visit Canton. If the Russian government intends to make permanent settlements on the American coast, and extend them southward, there can be little doubt that they may interfere with our claim to the western part of Louisiana, provided we secure a title to that territory as far as the great western ocean.”

Great size to which the Platanus Occidentalis, or American Button-wood, sometimes grows.

In Jefferson-town, Cayuga county, State of New-York, is a button-wood tree of uncommon dimensions. Eleven men have given a certificate that they were witnesses of this extraordinary vegetable production:—

“TO ALL WHO DISBELIEVE.—Be it known, that we, the subscribers, instigated by curiosity, have this day seen a tree in the above town, on the Montezuma estate, which measured forty-seven and an half feet in circumference two feet above the surface of the earth. This tree contained a hollow, into which we all walked, and stood in a circle, as far round as our number extended; the circle being incomplete by at least six men. On exact measurement we found

the diameter of the hollow on the surface to be upwards of fifteen feet.

Edward Savage,
James Hildreth,
James Burt,
Jno. Swartwout,
Saml. Crosset,
James Glover,

P. G. Hildreth,
Daniel Sayre,
Jos. Annin,
W. Mynderse,
Isrl. Smith."

Thus, this huge platanus contains a hollow, in which at least 17 men can march and stand in a circle. This enormous production of nature is supposed to have been the habitation of Indians and hunters a number of years ago. Being at first a natural hollow, the inside is probably somewhat improved by art, having one side open as a door; the largeness of the hollow is astonishing, making quite a commodious apartment. What renders this tree the more singular is, that it is still green and thrifty, and may continue growing larger for a number of years to come.

Charter for a College of Physicians and Surgeons in New-York.

Soon after the Revolutionary War, the Legislature incorporated an University in the State of New-York, and styled the members of its corporation REGENTS OF THE UNIVERSITY. This body politic possesses considerable property, and has the general superintendence of all literary and scientific institutions within the commonwealth. It has power to incorporate colleges and academies; and is bound to offer an annual report to the Legislature of their progress and condition.

Doubts having arisen, whether under the power vested in the University by the original law, it could grant a charter to incorporate a *College of Physicians*, the Legislature, by an express statute passed in 1791, enabled the Regents, when they pleased, to establish in the State a College of Physicians and Surgeons.

Although thus empowered by the Legislature, the University never thought proper to exercise their authority in this respect until March, 1807. A charter was then granted for constituting in the city of New-York a College of Physicians and Surgeons. Upwards of one hundred trustees are named in the instrument. New members are to be appointed by the University; though the College has the right to recommend. The College may grant to its mem.

bers diplomas of fellowship under its seal and presidential signature.

According to the charter, the College was organized on the first Tuesday of May, when the following officers were duly elected.

PRESIDENT,

NICHOLAS ROMAYNE, *M. D. Fellow of the Royal College of Physicians of Edinburgh, Licentiate of the Royal College of Physicians of London, &c.*

VICE-PRESIDENT,

SAMUEL L. MITCHILL, *M. D. F. R. S. E. Senator in the Congress of the United States, &c.*

REGISTER,

ARCHIBALD BRUCE, *M. D.*

TREASURER,

Dr. ABRAHAM BROWER.

CENSORS,

Edward Miller, David Hosack, Alexander Shelldon, William Livingston, Felix Pascalis, Joshua E. R. Birch, William Wheeler, J. D. Gillespie, H. Van Solingen, and William J. M'Nevin.

For the purpose of promoting medical science, the College is so organized as to include a *School of Physic*. Out of the members, the University has the power of appointing professors in medicine and the auxiliary branches of knowledge. And the College is charged with the business of providing for their accommodation, and especially of procuring an anatomical museum, chemical laboratory, and botanic garden. These officers are entitled PROFESSORS OF THE UNIVERSITY, &c. All degrees or titles of honour are conferred upon students or others by the University; though the College will impart instruction to the pupils, and recommend them or other candidates to the Regents.

The charter is in perpetuity; and the College may hold property to the amount of one hundred and fifty thousand dollars.

The following professorships and professors have been constituted and appointed by the University, viz.

Chemistry, SAMUEL L. MITCHILL, *M. D.*

Practice of Physic, EDWARD MILLER, *M. D.*

Botany and Materia Medica, DAVID HOSACK, *M. D.*

Mineralogy, ARCHIBALD BRUCE, *M. D.*

Institutes of Medicine, BENJAMIN DE WITT, *M. D.*

In addition to these appointments, the College, in pur-

suance of powers vested in them by the charter, have, during the recess of the Regents, made the following arrangement towards completing the system of medical instruction.

The department of *Anatomy* is committed to the direction of Dr. ROMAYNE, who already has taken measures to procure the co-operation of an eminent anatomical teacher.

Dr. Benjamin De Witt is appointed Lecturer on Chemistry; for the purpose of taking charge of that branch during Professor Mitchill's attendance in the Senate of the United States.

Dr. Alexander Hosack is appointed Lecturer on *Materia Medica* and Botany; for the occasional assistance of Professor Hosack.

Dr. David Hosack is appointed Lecturer on Surgery and Midwifery.

The courses of lectures by the above mentioned gentlemen will commence in the beginning of November next.

Massachusetts Edition of the Zoonomia.

We ought long ago to have announced this edition of Darwin's *Zoonomia*, published in Boston, by Messrs. Thomas and Andrews. The whole of this great medical and philosophical work is comprehended in two large and well-executed octavo volumes. The first contains, in addition to the European text, MITCHILL's *Introductory Remarks*, comprehending a review of the ancient *Epicurean* and *Methodic* philosophy, and his examination, how far the *Brunonian* and *Darwinian* systems of physic are derived from those sources, and in what degree the latter of these two is indebted to the former.

Cow-Pock Inoculation in New-York.

To the Trustees of the Dispensary:
The Physician of the Kine-pock Department
Reports,

That the practice of vaccination has been regularly attended to, and that by means of this establishment, nearly eleven hundred have been inoculated; not one of whom has been known since to have taken the small-pox.

The subscriber cannot here forego the satisfaction of presenting to the attention of the Trustees the following considerations, which, from their being so highly interesting to the cause of humanity, and so honourable to the practice of

vaccination, cannot but be gratifying to them, as directors of an institution which has so greatly contributed towards bringing about the happy change from small-pox to the kin-pock inoculation.

During the fifteen years immediately preceding the introduction of the vaccine disease into this city, it appears, by a regular record preserved by the sextons, that 5,756 persons were interred in the cemeteries of St. Paul's and Trinity, of whom 610, which is upwards of the tenth part of the whole number, had died under the immediate operation of the small-pox. From the public obituary, since established by the Corporation, we find that in the years 1805 and 1806, 4,595 persons have died in this city; 110 only, which is less than one fortieth part, was by the small-pox; whence it may be fairly inferred, that during the two last years, the practice of vaccination has preserved 376 of our fellow citizens from falling victims to that most loathsome of all human maladies, while itself does not form a single item in the bills of mortality.

If individuals would attend seasonably to partake of the means now offered for their protection, it is more than probable, that in a little time the small-pox would be only heard of in history, and our country be freed from one of its most dreadful scourges.

V. SEAMAN.

New-York, 1st month 3d, 1807.

A P P E N D I X.

PROCEEDINGS IN NEW-YORK RELATIVE TO THE MEDICAL PROFESSION.

I. *Establishment of Medical Societies throughout all the Counties in the Commonwealth.*

1. *An Act of the Legislature to Incorporate Medical Societies, for the Purpose of regulating the Practice of Physic and Surgery in this State, passed April 4th, 1806.*

WHEREAS well regulated medical societies have been found to contribute to the diffusion of true science, and particularly the knowledge of the healing art: Therefore,

Be it enacted by the People of the State of New-York, represented in Senate and Assembly, That it shall and may be lawful for the physicians and surgeons in the several counties of this State, now authorized by law to practise in their several professions, to meet together on the first Tuesday of July next, at the place where the last term of the court of common pleas next previous to such meeting was held in their respective counties; and the several physicians and surgeons so convened as aforesaid, or any part of them, being not less than five in number, shall proceed to the choice of a president, vice-president, secretary and treasurer, who shall hold their offices for one year, and until others shall be chosen in their places; and whenever the said societies shall be so organized as aforesaid, they are hereby declared to be bodies corporate and politic, in fact and in name, by the names of the Medical Society of the county where such societies shall respectively be formed, and by that name shall be in law capable of suing and being sued, pleading and being impleaded, answering and being answered unto, defending and being defended, in all courts and places, and in all matters and causes whatsoever, and shall and may have a common seal, and may alter and renew the same at their pleasure.

And be it further enacted, That there shall be a general medical society, to be composed of one member from each of the county societies in the State, elected by ballot at their annual meeting, who shall meet together at the city of Al-

bany, on the first Tuesday of February next, and being so met, not less than fifteen in number, may proceed by ballot to the choice of a president, vice-president, secretary and treasurer, who shall hold their offices for one year, and until others shall be chosen in their places; and the said society, being so organized as aforesaid, shall be, and they are hereby declared to be a body corporate and politic, in fact and in name, by the name of "*The Medical Society of the State of New-York*," and by that name shall be in law capable of suing and being sued, pleading and being impleaded, answering and being answered unto, defending and being defended, in all courts and places, and in all matters and causes whatsoever, and shall and may have and use a common seal, and may change and alter the same at their pleasure.

And be it further enacted, That the Medical Society of the State of New-York, and also the medical societies of the respective counties, shall and may agree upon and determine the times and places of their next meeting, and the time so agreed upon shall for ever thereafter be the anniversary day of holding their respective meetings; and it is hereby made the duty of the secretary of each of the county medical societies, to lodge in the office of the clerk of their respective counties, a copy of all the proceedings had at their first meetings, within twenty days after such meetings; and it shall also be the duty of the secretary of the Medical Society of the State of New-York to lodge in the office of the Secretary of this State, a copy of their proceedings had at their first general meeting; and the said clerks and secretary are hereby required to file the same in their respective offices, for which they shall receive the sum of twelve and an half cents.

And be it further enacted, That the medical societies established as aforesaid, are hereby respectively empowered to examine all students who shall or may present themselves for that purpose, and to give diplomas under the hand of the president, and seal of such society before whom such student shall be examined, which diploma shall be sufficient to empower the person so obtaining the same, to practise physic or surgery, or both, as shall be set forth in said diploma, in any part of this State; and the person receiving such diploma shall, upon the reception of the same, pay to the president of said society the sum of two dollars, for the use of the said society.

And be it further enacted, That if any student who shall have presented himself for examination before any of the medical societies of the several counties of this State, shall think himself aggrieved by the decision of such society, it shall be lawful for such student to present himself for examination to the medical society of the State of New-York; and if, in the opinion of such society, the student so applying is well qualified for the practice of physic or surgery, or both, as the case may be, the president of said society shall, under his hand, and the seal of such society, give to the said applicant a diploma agreeable to such decision, the said applicant paying therefor to the said president the sum of two dollars.

And be it further enacted, That it shall and may be lawful for the several medical societies so established as aforesaid, at their annual meetings, to appoint not less than three nor more than five censors, to continue in office for one year, and until others are chosen, whose duty it shall be carefully and impartially to examine all students who shall present themselves for that purpose, and report their opinion in writing to the president of said society.

And be it further enacted, That from and after the first day of September next, no person shall commence the practice of physic or surgery within any of the counties of this State, until he shall have passed an examination, and received a diploma from one of the medical societies to be established as aforesaid; and if any person shall so practise without having obtained a diploma for that purpose, he shall for ever thereafter be disqualified from collecting any debt or debts incurred by such practice in any court of this State.

And be it further enacted, That it shall and may be lawful for the medical societies of the respective counties in the State, which shall be established by virtue of this act, and also the medical society of the State of New-York, to purchase and hold any estate, real and personal, for the use of the said respective societies; *provided* such estate, as well real as personal, which the county societies are hereby respectively authorized to hold, shall not exceed the sum of one thousand dollars; and that the estate, as well real as personal, which the medical society of the State of New-York is hereby authorized to hold, shall not exceed five thousand dollars.

And be it further enacted, That it shall be lawful for the

respective societies to be established by virtue of this act, to make such bye-laws, rules and regulations relative to the affairs, concerns and property of said societies, relative to the admission and expulsion of members, relative to such donations or contributions as they or a majority of the members at their annual meeting shall think fit or proper: *Provided* that such bye-laws, rules and regulations made by the society of the State of New-York be not contrary to, nor inconsistent with the constitution and laws of this State, or of the United States, and that the bye-laws, rules and regulations of the respective county societies shall not be repugnant to the bye-laws, rules and regulations of the medical society of the State of New-York, nor contrary to, nor inconsistent with the constitution and laws of this State, or of the United States.

And be it further enacted, That the treasurer of each society established as aforesaid, shall receive and be accountable for all monies that shall come into his hands by virtue of any of the bye-laws of such society, and also for all monies that shall come into the hands of the president thereof, for the admission of members or licensing students; which monies the said president is hereby required to pay over to the said treasurer, who shall account therefor to the society at their annual meetings; and no monies shall be drawn from the treasurer unless in such sums, and for such purposes as shall be agreed upon by a majority of the society at their annual meeting, and by a warrant for that purpose signed by the President.

And be it further enacted, That it shall be the duty of the secretary of each of the medical societies to be established by virtue of this act, to provide a book, in which he shall make an entry of all the resolutions and proceedings which may be had from time to time, and also the name of each and every member of said society, and the time of his admission; and also the annual reports relative to the state of the treasury, and all such other things as a majority of the society shall think proper, to which book any member of the society may at any time have recourse; and the same, together with all books, papers and records which may be in the hands of the secretary, and be the property of the society, shall be delivered to his successor in office.

And be it further enacted, That it shall be lawful for each of the medical societies to be established by virtue of this act, to cause to be raised and collected from each of the

members of the society, a sum not exceeding three dollars in any one year, for the purpose of procuring a medical library and apparatus, and for the encouragement of useful discoveries in chemistry, botany, and such other improvements as the majority of the society shall think proper.

And be it further enacted, That nothing in this act contained shall be construed to prevent any person coming from any other state or country from practising physic or surgery within this State, such person being duly authorized to practise, by the laws of such state or country, having a diploma from a regular medical society, nor to compel any student who may have commenced his studies previous to the first day of January, one thousand eight hundred and five, to be examined by such society, and licensed in manner aforesaid, if such student shall choose to study four years, and be licensed in the manner now prescribed by law: *Provided, however,* that none of the societies established as aforesaid shall proceed to the examination of any student in order to license him for the practice, until such student shall have produced satisfactory testimony that he had regularly studied physic or surgery, or both, as the case may be, with one or more reputable practitioner or practitioners for the term of three years.

And be it further enacted, That it shall be in the power of the Legislature to alter, modify or repeal this act whenever they shall deem it necessary or expedient.

And be it further enacted, That the act, entitled, "An Act to regulate the Practice of Physic and Surgery in this State," be, and the same is hereby repealed from and after the first day of September next.

And be it further enacted, That if there should not be a sufficient number of physicians and surgeons in any of the counties of this State to form themselves into a medical society by virtue of this act, it shall be lawful for such physicians and surgeons to associate with the physicians and surgeons of an adjoining county for the purposes hereby contemplated.

And be it further enacted, That if the physicians and surgeons of any county or counties of this State should not meet and organize themselves at such time and place as is required by this act, it shall be lawful for them to meet at such other time as a majority of them shall think proper, and their proceedings shall be as valid as if such meeting had been at the same time provided for by this act.

And be it further enacted, That this act shall be and hereby is declared to be a public act.

2. *An Act to amend an Act, entitled, "An Act to regulate the Practice of Physic and Surgery. Passed 3d of April, 1807.*

BE it enacted by the People of the State of New-York, represented in Senate and Assembly, That the members now composing the Medical Society of the State of New-York, shall, at their next annual meeting, divide the members of said society from each of the four great districts into four classes, and one class from each of said districts shall go out of office annually; and the said society shall by lot determine which class first go out of office, and so for each and every class; and the class whose seats shall first be vacated in each of the said districts, shall be called the first class, and the class whose seats shall next become vacated shall be called the second class, and the seats of those which shall next become vacated shall be called the third class, and the seats of the members which shall last become vacated shall be denominated the fourth class; and the members now composing the said society shall continue and remain members of the same until their seats shall become vacated in the manner above described, and until others shall be chosen in their places.

And be it further enacted, That it shall be the duty of the secretary of the Medical Society of the State of New-York, whenever the seats of any of the members shall become vacant by the preceding section of this act, to give information of the same to the respective county societies, to the end that such county societies may supply such vacancy at their next meeting.

And be it further enacted, That in case there shall be an addition to the number of members composing the Medical Society of the State, that in that case it shall be in the power of said society, at any of their annual meetings, and as often as they shall judge necessary, to alter and vary the classes to be established at their next annual meeting, in such manner as that one-fourth of the members from each of the great districts, as near as may be, shall annually go out of office.

And be it further enacted, That if the seat of any member of the Medical Society of the State of New-York shall be vacated, either by death, resignation, or removal from the county, it shall be the duty of the Medical Society of such

county to fill such vacancy at the next meeting after such vacancy shall happen.

And be it further enacted, That if any person, not authorized to practice physic or surgery at the time of the passing the act hereby amended, or if any person since the passing of said act shall have commenced the practice of physic or surgery without being legally authorized, every person who shall so continue to practise unauthorized shall forfeit and pay the sum of five dollars for every month such unauthorized practice is continued, to be recovered with costs of suit, before any justice of the peace of the county where such penalty shall be incurred, by any person who will prosecute for the same; the one moiety of which, when recovered, shall be paid to the person prosecuting for the same, and the other moiety to the overseers of the poor of the town where the person incurring the penalty shall reside, for the use of the poor of said town: *Provided*, that the penalty to be incurred by the preceding section of this act shall not be considered to extend to any apothecary, or to any person administering medicine, who does not follow the same as a profession; nor shall any prosecution be commenced by virtue of said section unless it shall be within thirty days after the penalty incurred, nor shall a second prosecution be commenced, or recovery be had in less than thirty days from the date of the first recovery. *And provided further*, that nothing in this act contained shall be construed to debar any person from using or applying, for the benefit of any sick person, any roots or herbs, the growth or produce of the United States.

II. *Incorporation of a College of Physicians in the City of New-York.*

1. *Extract from an Act to institute an University within this State, and for other Purposes therein mentioned, passed 13th April, 1787.*

I. *Be it enacted by the People of the State of New-York, represented in Senate and Assembly, and it is hereby enacted by the authority of the same*, That an University be and is hereby instituted within this State, to be called and known by the name or style of *The Regents of the University of the State of New-York*: that the said Regents shall always be twenty-one in number, of which the Governor and Lieutenant-Governor of the State for the time being shall always in virtue of their offices be two; that the Governor, Lieu-

tenant-Governor, and John Rodgers, Egbert Benson, Philip Schuyler, Ezra L'Hommedieu, Nathan Carr, Peter Sylvester, John Jay, Dirck Romeyn, James Livingston, Ebenezer Russel, Lewis Morris, Matthew Clarkson, Benjamin Moore, Eilardus Westerlo, Andrew King, William Lynn, Jonathan G. Tompkins, John M'Donald and Frederick William De Steuben, shall be, and hereby are appointed the present Regents; and that they and all the future Regents shall continue in place during the pleasure of the Legislature; that all vacancies in the regency which may happen by death or removal, or resignation, shall from time to time be supplied by the Legislature, in the manner in which delegates to Congress are appointed; that the said Regents, as soon as may be after the passing of this act, shall convene at such time and place as the Governor shall appoint, and by plurality of voices, by ballot, choose a Chancellor and Vice-Chancellor, to continue in office during the pleasure of the said Regents; that the said Chancellor, or in his absence from the said meeting, the Vice-Chancellor, or in case both be absent, then the senior Regent present (and whose seniority shall be decided by the order in which the Regents are named or appointed) shall preside, and in case of division have a casting voice at all meetings of the said Regents; that all meetings of the said Regents after the first, shall be held at such time and place as the Chancellor, or in case of his death, absence from the State, or resignation, the Vice-Chancellor, or in case of the death, absence from the State, or resignation of both of them, then at such time and place as the senior Regent present in the State shall appoint; and it shall be the duty of the Chancellor, Vice-Chancellor, or senior Regent, as the case in virtue of the above contingencies may be, to order and call a meeting of the said Regents whenever and as often as three Regents shall in writing apply for and request the same; such order or call to be published in one or more of the public newspapers in the city of New-York, at least ten days prior to such meeting: *And further*, That any eight of the said Regents meeting at the time and place so ordered shall be a quorum, and be enabled to transact and do the business which by this act they shall be authorized or directed to do and transact; that the said University shall be, and hereby is incorporated, and shall be known by the name of *The Regents of the University of the State of New-York*, and by that name shall have perpetual succession, and power to sue and be sued;

to hold property real and personal, to the amount of the annual income of forty thousand bushels of wheat; to buy and to sell, and otherwise lawfully dispose of land and chattels; to make and use a common seal, and to alter the same at pleasure.

II. *And be it further enacted by the authority aforesaid,* That the said corporation shall appoint, by ballot, a treasurer and secretary, to continue in office during the pleasure of the corporation; that the treasurer shall keep fair and true accounts of all monies by him received and paid out; and that the secretary shall keep a fair journal of the meetings and proceedings of the corporation, in which the yeas and nays on all questions shall be entered, if required by any one of the Regents present; and to all the books and papers of the corporation every Regent shall always have access, and be permitted to take copies of them.

III. *And be it further enacted by the authority aforesaid.* That it shall and may be lawful to and for the said Regents, and they are hereby authorized and required to visit and inspect all the colleges, academies and schools which are or may be established in this State, examine into the state and system of education and discipline therein, and make a yearly report thereof to the Legislature, and also to visit every college in this State once a year, by themselves or by their committees, and yearly to report the state of the same to the Legislature, and to make such bye-laws and ordinances, not inconsistent with the constitution and laws of the State, as they may judge most expedient for the accomplishment of the trust hereby reposed in them; and in case the trustees of the said colleges, or any of them, shall leave the office of president of the college, or the trustees of any academy shall leave the office or place of principal of the academy vacant, for the space of one year, it shall in all such cases be lawful for the Regents, unless a reasonable cause shall be assigned for such delay to their satisfaction, to fill up such vacancies; and the persons by them appointed shall continue in office during the pleasure of the Regents, and shall respectively be received by the college or academy to which they may be appointed, and shall have all the powers and exactly the same salary, emoluments and privileges as his next immediate predecessor in office enjoyed, if any predecessor he had, if not, then such salary as the Regents shall direct, to be paid by the trustees, who shall, out of the funds or estate of their college or academy, be

compellable by the said president or principal to pay the same.

IV. *And be it further enacted by the authority aforesaid,* That the said Regents shall have the right of conferring, by diplomas under their common seal, on any person or persons whom they may think worthy thereof, all such degree or degrees, above or beyond those of bachelor or master of arts, as are known to and usually granted by any university or college in Europe.

V. *And be it further enacted by the authority aforesaid,* That it shall and may be lawful to and for the said Regents, from time to time, to apply such part of their estate and funds, in such manner as they may think most conducive to the promotion of literature and the advancement of useful knowledge within this State: *Provided always,* That where grants shall be made to them for certain uses and purposes therein expressed and declared, the same shall not be applied either in the whole or in part to any other uses.

VI. *And be it further enacted by the authority aforesaid,* That the Regents shall annually meet on the second Thursday next after the Senate and Assembly, at the annual session of the Legislature, shall have formed a quorum respectively, and at the Assembly Chamber, immediately after the Assembly shall have adjourned; that the said Regents, at such meetings, and all others, may adjourn from time to time, not exceeding ten days at any one time.

VII. *And be it further enacted by the authority aforesaid,* That any citizen or citizens, or bodies corporate within this State, being minded to found a college at any place within the same, he or they shall in writing make known to the Regents the place where, the plan on which, and the funds with which it is intended to found and provide for the same, and who are proposed for the first trustees; and in case the Regents shall approve thereof, then they shall declare their approbation by an instrument under their common seal, and allow a convenient time for completing the same; and if at the expiration of the said time it shall appear to the satisfaction of the Regents, that the said plan and propositions are fully executed, then they shall, by act under their common seal, declare that the said college, to be named as the founders shall signify, and with such trustees, not exceeding twenty-four, nor less than ten, as they shall name, shall forthwith become incorporated, and shall

have perpetual succession, and enjoy all the corporate rights and privileges enjoyed by Columbia College, herein after mentioned.

2. *An Act to enable the Regents of the University to establish a College of Physicians and Surgeons within this State, passed 24th March, 1791.*

I. *Be it enacted by the People of the State of New-York, represented in Senate and Assembly, and it is hereby enacted by the authority of the same,* That it shall and may be lawful for the Regents of the University, if they shall judge it proper and necessary, and they are hereby authorized to establish under their common seal, a College of Physicians and Surgeons, for the sole purpose of promoting medical science, to consist of at least thirteen trustees or members, who shall be vested with such powers and privileges as the said Regents shall judge best calculated to answer the purposes of such an institution: *Provided always,* That the amount of the property which the said college shall or may be authorized to hold, shall never exceed in value sixty thousand pounds current money of New-York; and that the said Regents reserve to themselves the right of conferring degrees and appointing the professors or teachers of the several branches of the medical science in the said college, and of filling all such vacancies as shall or may arise among the trustees or members thereof: *And provided also,* That any of the trustees of the said college shall, in the discretion of the Regents of the University, be appointed professors and teachers in the said college, any law to the contrary notwithstanding.

II. *And be it further enacted by the authority aforesaid,* That the college so to be established, shall be forthwith thereafter a corporation, and shall be known by such name as the said Regents shall direct and appoint, and shall have, hold and enjoy, to them and their successors, all such powers, rights, privileges and immunities, not inconsistent with the constitution and laws of this State, as shall be for that purpose declared by the said Regents in their said act of establishment.

3. *The Charter given by the Regents of the University of the State of New-York, to the Persons therein named, and their Associates, constituting them a College of Physicians and Surgeons.*

WHEREAS the Medical Society of the county of New-York have presented unto us their memorial, under the seal of the said society, testified by Archibald Bruce, secretary, stating that their efforts to contribute to the diffusion of science, and the improvement of the medical profession, would be more successful, if they were directed under the patronage of the Regents of the University of this State, and were incorporated as a College of Physicians and Surgeons, and praying us to favour the views of the said society, so far as they are connected with the public good, and with which the improvement of the medical profession is intimately connected, and that the said society may be incorporated as a College of Physicians and Surgeons, under our patronage.

And whereas Nicholas Romaine, president of the said medical society of the said county of New-York, has also presented unto us his memorial in writing, stating that the said medical society is directed by law to examine students of medicine, and to grant licenses to such as are properly qualified to practise physic or surgery, or both;—that the said society are impressed with the importance to the public, that a system of medical education should be instituted under their inspection, and praying us, in behalf of the said medical society of the county of New-York, and of each and every member thereof, that all the members of the medical society of the county of New-York might be incorporated by us into a College of Physicians and Surgeons, under our direction and patronage, with all such rights and privileges as might conduce to the promotion of medical knowledge and the public good: And we having taken the said memorials into our consideration, and being satisfied that a College of Physicians and Surgeons, established in the city of New-York, for the sole purpose of promoting medical science, may be of public importance in diffusing the knowledge of the healing art:

Be it therefore ordained by us, by virtue of the act entitled “An act to enable the Regents of the University to establish a College of Physicians and Surgeons within this State,” passed the 24th day of March, 1791, and we do, by these

presents, *ordain, grant, and declare*, That a *College of Physicians and Surgeons, for the promotion of medical science, and diffusing the knowledge of the healing art*, shall be, and is hereby established in the city of New-York, in this State; and that Sir James Jay, James G. Graham, Alexander Sheldon, Samuel L. Mitchill, William Livingston, Isaac Sargeant, Peter C. Adams, John Ely, Hugh Williamson, William M'Clelland, William Wheeler, Morris Willard, John Stearns, Philip Smith, Westel Willoughby, Caleb Sampson, Dunforth Shunway, Hugh Henderson, Gurdon Huntington, James Moore, John H. Frisbee, Barnabas Smith, Reuben Hart, Jesse Shepherd, Thomas B. Whitmarsh, David R. Arnell, Lyman Cook, John M. Mann, James Smith, Samuel Bard, Samuel Stringer, Hunloke Woodruff, Joseph White, Ebenezer Sage, Richard Udall, John Smith, Charles D. Cooper, Elias Willard, Jacob Outwater, Benjamin De Witt, Abraham Cornelison, David Hasbrouck, Charles Mitchill, Felix Pascalis, Samuel Torbert, Joshua E. R. Birch, John Riddel, George Anthon, John I. Coventry, Gardiner Jones, Philip Turner, Lewis Faugeres, Samuel Nesbit, John Onderdonk, William Moore, Nicholas Romaine, James Tillary, Archibald Bruce, Valentine Seaman, David Hosack, John R. B. Rodgers, Wright Post, Edward Miller, William Hamersley, James S. Stringham, John H. Douglass, George W. Chapman, William James M'Nevin, John D. Jaques, Malachi Foot, Andrew Morton, John D. Gillespie, Alexander Hosack, Philip D. Kettletas, John Clark, Charles Buxton, Michael Degray, Daniel B. Cornelius, Joel Hart, Abraham Brower, John Wilson, Eloy Berger, Richard S. Kissam, Andrew Hunt, Benjamin Prince, Beekman Van Beuren, John Hicks, Joseph Bloodgood, Matthew Wendell, Samuel Bradhurst, John Stone, Baron A. De Carendeffez, George D. Clussman, Samuel Osborn, Benjamin Low, Joshua Secor, Benjamin Rockwell, Shadrack Ricketson, George C. Quackenbos, Robert Thorn, Abraham Lozier, and all others who are now members of the Medical Society of the county of New-York, and all physicians and surgeons now resident in the county of New-York, and authorized by law to practise in their several professions, shall be the present trustees or members of the said college; and that the said trustees or members and their successors, shall be a body corporate and politic in fact, and in name, by the name of "*The College of Physicians and Surgeons in the City of New-York*," and shall have perpetual succession, and by that

name shall be in law capable to sue and be sued, to plead and be impleaded, to answer and be answered unto, to defend and be defended in all courts and places, and in all matters and causes whatsoever, and to purchase, take, hold, enjoy and have, lands, messuages, tenements, hereditaments, and real estate, in fee simple, or for term of years, or lives, or in any other manner whatsoever; and also goods, chattels, books, monies, and all other things, of what nature soever: *Provided always*, that such estate, as well real as personal, which the said college is hereby authorized to hold, shall not exceed the sum of one hundred and fifty thousand dollars, current money of this State; and that the trustees or members of said college shall and may have a common seal, and may alter and renew the same at their pleasure.

And it is hereby further ordained, granted, and declared, That the trustees or members of the college of physicians and surgeons hereby established, shall and may meet together on the first Tuesday in May next, at twelve o'clock of that day, in the City-hall of the city of New-York, or at such other hour and place as may be directed by the Chancellor of the University, and shall then elect by ballot, a President, Vice-President, Register, Treasurer, and thirteen Censors, who shall hold their respective offices for one year, and until others shall be chosen in their places; and the first Tuesday in May shall be for ever after the day for the anniversary meeting of said college of physicians and surgeons, and on which day the president and other officers before enumerated shall be elected as aforesaid; and their quarterly meetings shall be on the first Tuesday in August, November, and February in every year; and that on the days of their anniversary meeting, and at their quarterly meetings, but at no other time, they the said trustees or members, may enact such bye-laws, rules, and regulations, relative to the affairs, concerns and property of said college, and relative to the duties of their president, vice-president, register, treasurer, censors, and other members, as they or a majority of the members of such annual or quarterly meetings may think fit and proper: *Provided* such bye-laws, rules, and regulations be not contrary to, or inconsistent with the constitutions and laws of this State, or the United States, or the ordinances made by us or our successors, Regents of the University of this State. And the register of

the said College shall provide a book, in which he shall make an entry of all the resolutions and proceedings which may be had from time to time, and also the annual reports relative to the state of the treasury, and all such other things as a majority of the members of the college shall think proper, to which any member of the college may at any time have recourse; and the same, together with all books, papers, and records, which may be in the hands of the register, and be the property of the college, shall be delivered to his successor in office. And the treasurer of the said college shall receive and be accountable for all monies which shall come into his hands, and shall pay the same in such manner as may be directed by a majority of the members of said college convened at the anniversary or quarterly meetings, and by a warrant for that purpose, signed by the president or vice-president.

And it is hereby further ordained and declared, That in case it should at any time happen that an election of the said officers should not be made on the day when, pursuant to this ordinance, it ought to have been done, the said corporation shall not for that cause be deemed to be dissolved, but it shall be lawful on any other day within three months thereafter to hold and make an election for the said officers, in such manner as shall have been regulated by the by-laws of the said corporation.

And it is hereby further ordained, granted and declared by us, That the said College of Physicians and Surgeons shall, as far as they are able, at all times, provide suitable apartments for all such professors as shall hereafter be nominated and appointed by us in and for said college, and which professors shall have the style and title of "*Professors of the University of the State of New-York for the College of Physicians and Surgeons;*" and that all the members of said college shall be privileged from time to time, and all times, to attend, inspect, and notice all lectures, or other mode of teaching by the professors in said college appointed by us; and that, in case of death or resignation of any professor, or other vacancy in said college, a majority of the trustees or members of said college, at any of their meetings, may appoint lecturers in any branch of medicine, or of the sciences connected therewith, until such time as our pleasure be known respecting the same, or professors be appointed by us; and that it shall and may be lawful, at all times, for them

the said trustees or members, to appoint lecturers in said college, in any branch of science, for themselves, and for their own instruction.

And it is hereby further ordained, granted, and declared, That the president, vice-president, censors, and all others, the trustees or members of said college, shall carry and put into full effect, all our ordinances respecting the said college, as well with respect to education as all other matters and things, and shall pay due attention towards establishing and preserving for the said college an Anatomical Museum and Chemical Elaboratory and Botanic Garden, and shall make an annual report to us in writing, or to the Chancellor of the University, in the month of January in every year, respecting the funds and property of the said college, and all matters and things relative to said college, and the students and professors thereof.

And it is further ordained, granted and declared, That twenty-one trustees or members of the said college may form a board to do business at any of the anniversary, quarterly, or extraordinary meetings; and that the president, or, in his absence, the vice-president of said college, shall appoint and direct a special or extraordinary meeting to be called of the trustees or members of said college, at any time or place he may think proper, provided application be made to him in writing for that purpose, signed by thirteen trustees or members, and the said meeting be previously advertised for six days in two of the newspapers printed in the city of New-York; and that at all the meetings of the college, in the absence of the president, or vice-president, the senior censor on the list of the college then present shall preside; and that the trustees or members of said college may, at any of their anniversary, quarterly, or extraordinary meetings, adjourn from day to day.

And it is further ordained, granted and declared, That the president, vice-president, trustees, or members of said college may, at any time, and at all times, recommend to us any person residing in the county of New-York, and lawfully authorized to practise physic and surgery, or any physician or surgeon, or person eminent for learning and talents, to be a trustee or member of said college of physicians and surgeons; and any physician and surgeon resident for two years in the county of New-York, being of good moral character, and authorized by law to practise in his profession, may apply to us to be nominated and appointed a trustee or

member of said college ; and that the said college may direct that the president of the said college grant appropriate diplomas, under the hand of the president and seal of said college, testified by the register, certifying the name of every such trustee or member of the college.

And be it further ordained and declared, That, reserving to ourselves and our successors, Regents of the University of this State, all powers to appoint professors in said college, and also all powers to appoint and displace any trustee or member of said College, now nominated and appointed by this charter, or hereafter to be appointed by us, or our successors; and also reserving all powers to confer degrees on any member, or trustee, or student of said college, which, in our opinion, and in the opinion of the president and other trustees and members of said college, may be worthy of any literary mark of distinction, in such manner as may be directed by us; and also reserving to ourselves and our successors, the right of appointing fellows and honorary members for said College, and also of making such further grants or ordinances as we and our successors may find necessary and useful for said college; and also reserving to ourselves and our successors the right to alter and modify this ordinance, establishing the said college, whenever we or our successors shall deem it necessary or expedient :

We do finally ordain, grant, and declare, That the said trustees and members of the College of Physicians and Surgeons in the city of New-York, and their successors, for ever, shall enjoy all the corporate rights, privileges and immunities which are hereby granted.

In testimony whereof we have caused our common seal to be affixed to these presents the twelfth day of March, in the thirty-first year of the independence of the United States, and of our Lord one thousand eight hundred and seven.

[L. S. A.]

MORGAN LEWIS.

By command of the Chancellor,

FR. BLOODGOOD, Secretary.

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ERRATUM.

In the present volume, page 227 and 228, in Mitchill's memoir on ice-islands, instead of the present reading of the paragraph beginning on the last line of the page, strike out of the first sentence *the first four words*, and the first word of the succeeding line, and let it read thus, "Capt. Swaine, of the ship *Perseverance*, arrived at New-York on the 21st June," &c.

END OF VOL. IV. HEX. II.

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